

US EPA RECORDS CENTER REGION 5



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APPENDIX B

**HEALTH AND SAFETY PLAN FOR
OPERATIONS AND MAINTENANCE**

**HEALTH AND SAFETY PLAN (HASP)
OPERATIONS AND MAINTENANCE ACTIVITIES**

**WAUKEGAN HARBOR REMEDIAL ACTION
WAUKEGAN HARBOR SUPERFUND SITE
WAUKEGAN, ILLINOIS**

**REVISION NO. 0
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HEALTH AND SAFETY PLAN
OPERATIONS AND MAINTENANCE ACTIVITIES
WAUKEGAN HARBOR REMEDIAL ACTION
WAUKEGAN, ILLINOIS

1.0 INTRODUCTION

This document comprises the health and safety plan (HASP) for the Waukegan Harbor Site Operation and Maintenance Program (O&M). The Site is located in Waukegan, Illinois as shown on Figure 1. The HASP addresses the procedural requirements to protect workers during the expected operation and maintenance activities at the Waukegan Harbor Remedial Action (Site). The plan will be implemented in accordance with the Occupational Safety and Health Administration (OSHA) Standards for Hazardous Waste Operations and Emergency Response, HAZWOPER 29 CFR 1910.120. All information in this plan will be presented and available to on-site personnel and contractors. Appendix A presents an acknowledgment form to be signed by all on-site workers and any visitors present during O&M activities. A copy of this plan will be available at all times on the Site.

The specific activities and procedures to be followed are described in the Operations and Maintenance Plan (1997) and are summarized in Table 1. The activities include water level measurement, well development, site surveying, collection of groundwater and treatment plant water samples, collection of site-derived waste samples, and recovery and treatment of water that has contacted the materials in the containment cells. This document describes specific safety procedures which will be utilized for on-site personnel involved in the operations and maintenance activities, including contractors.

Contractors are responsible for the health and safety of their own workers on-site and for preparation of appropriate health and safety plans specific to their Site activities. OMC will provide a copy of this HASP to contractors. Historical reports and plans for the Site are also available for reference and review by contractors if desired (at the Corporate Environmental Health & Safety Department offices). Contractors' on-site representatives will be required to acknowledge receipt of the HASP, abide by applicable provisions of the plan, and provide the OMC project manager with copies of training documentation for all on-site employees. If a contractor's work includes invasive activities such as excavation within the containment cells, repair of containment cell HDPE cover, or extraction well installation and rehabilitation, the contractor shall provide a copy of their written safety plan to the OMC project manager prior to conducting such activities.

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The plan presents a realistic approach to the anticipated hazards at the Site; however, Site conditions may vary through the duration of O&M. As actual Site conditions change, parts of the plan may be revised or special activity-specific safety procedures may be developed as needed. Such revisions or additions should be documented in Appendix G. Changes in health and safety measures specified must be approved by the corporate health and safety manager. OMC's corporate health and safety manager is Mr. Robert Trinkl.

The OMC project manager will serve as the project health and safety officer. The project health and safety officer has the authority and responsibility to implement all aspects of this plan, including termination of all field activities to resolve health and safety issues. The project health and safety officer is responsible for updating this plan with approval from a corporate health and safety officer, as conditions warrant. The project manager has the overall responsibility for the project including health and safety.

The sampling coordinators or treatment system operators will serve as the 'on-site' or 'field' safety officer during O&M activities. They shall have the responsibility of implementing the requirements of the HASP during all O&M activities in which they are involved, for notifying the project manager of any incidents or changes in conditions, and for verifying that field staff (including contractors) have reviewed the Site HASP, have provided training documentation, and have signed the acknowledgment form prior to allowing them to proceed with work on-site.

2.0 SITE ACCESS

Site access is generally restricted and the potential for exposure to contaminated materials by non-site workers is very limited. The containment cells are enclosed within slurry walls and high density polyethylene (HDPE) cover materials and are capped with vegetation or asphaltic concrete. The containment cells and treatment systems are located on OMC property which is monitored regularly by company security. Treatment buildings and wells are kept locked, except when in use and attended. The OMC Project Manager shall administer distribution of Site keys and shall be advised of all key assignments, whether given out on a temporary or permanent basis.

Access to active work areas during operation and maintenance activities will be limited to key project staff, such as:

- Field sampling coordinator and sampling crew,
- Water treatment plant operators,
- The Quality Assurance Officer,
- Approved contractors engaged in the work,
- The OMC Project Manager,
- The Corporate Health and Safety Manager, and
- Agency oversight personnel.

Prior to access to active work areas, all persons shall have reviewed this HASP, completed any training required under HAZWOPER, and filed copies of training documentation and a signed acknowledgment form (Appendix A) with the OMC Project Manager. Visitors and observers must be approved by the OMC Project Manager or Corporate Health and Safety Manager prior to access and are subject to the above requirements if they desire access during work activities.

3.0 HAZARDS ANALYSIS

The work activities associated with the O&M present potential physical and chemical hazards to the workers involved. Sampling with specialized equipment, operation of treatment systems, and outside inspections pose physical risks. The remedial action was completed to mitigate specific chemicals of concern to the environment. Therefore, there is a potential for Site workers to contact materials containing concentrations of these chemicals. In all instances, precautionary measures will be implemented to minimize those risks. OMC has corporate and plant operation safety procedures that apply to Site O&M activities. Appendices B, C, D, and E contain pertinent information on key OMC safety programs to be followed on Site.

In prior manufacturing operations on the Site, Outboard Marine Corporation (OMC) used hydraulic oil that contained polychlorinated biphenyls (PCBs). The PCBs are the only hazardous constituents of the oil and represent the primary chemicals of concern at the Site.

During construction of a new slip to replace Slip No. 3 for Larsen Marine Services, soil contaminated with polynuclear aromatic hydrocarbons (PNAs) was also discovered. These PNA contaminants relate to another site, the Waukegan Manufactured Gas and Coke Plant Site, (WMGCP Site) which is being investigated and remediated separately. Some PNA contaminated soils were removed and placed in a temporary stockpile lined and covered with HDPE (called the Temporary Designated Soil Stockpile). Maintenance of the stockpile requires periodic measurement of the water level in a sump, occasional pumping of water from the sump, and maintenance and repair of the HDPE cover as needed. Therefore, PNAs are secondary chemicals of concern for the Site. Once a permanent remedy is implemented for the stockpile, health and safety requirements for PNAs under the Waukegan Harbor Site Remedial Action should cease and be addressed in the health and safety documents written for the WMGCP Site.

3.1 Physical Hazards

As on all sites where physical labor occurs, there is a recognized potential for injury due to "struck by/against" and slip/trip/fall accidents. Personal protective equipment (PPE) will be required to guard against head, foot, and eye injuries. General housekeeping and safety precautions should be taken to minimize the risk of injury. As much as possible, keep walkways and floors dry and free of obstructions, tools, etc. Replace tools and equipment to their storage areas when not in use. Treatment building doors should be secured with a safety chain when open to prevent sudden swinging from wind. Refer to the OMC Waukegan General Safety Procedures in Appendix B for more information.

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Many of the operation and maintenance activities occur outside and may take place any time of the year. Weather can affect workers' abilities to perform these activities as well as the equipment and protective gear required to complete the activities. Therefore, workers and the OMC project manager/health and safety officer shall evaluate ambient working conditions for heat stress and cold stress environments or factors that could cause hazards such as slippery surfaces or poor footing. The conditions should be used to select appropriate PPE and to define work schedules and staffing required. In inclement or extreme temperature conditions, work should be postponed or limited only to essential tasks that can not be delayed.

Lighting - Work areas must have adequate lighting for employees to see work and identify hazards (5-foot candles minimum). As much as possible, outdoor work should be completed during daylight hours. Workers should carry flashlights in all normally dark areas for use in the event of a power failure. Each treatment building shall have a working flashlight available. Applicable OSHA standards for lighting, 29 CFR 1910.120 (m), shall apply.

Electrical Power and Utilities - Electrical power must have a ground fault interrupter as part of the circuit. All equipment must be suitable and approved for the class of hazard. The location of all power sources and the controls to terminate power shall be determined prior to using all electrical utilities/equipment. Circuits shall be disconnected or locked and tagged to avoid electrocution during servicing activities. If circuits must remain "live", rerouting or bypass options will be explored by an electrical engineer or electrician. Appendix C presents OMC's Safety Lockout/Tagout Procedure that applies to such activities.

Overhead and underground utility hazards shall be identified and/or inspected prior to conducting operations involving potential contact. Areas where subsurface repair or exploration activities are planned (such as drilling or excavation) must be cleared in advance by contacting the Joint Utilities Location Information Exchange (JULIE), checking plans or Site drawings, inspecting the area, and conducting interviews with or obtaining the assistance of persons familiar with utility locations on site.

High or Elevated Work - Elevated work where a fall potential exists will be performed using appropriate ladders and/or fall protection (e.g., body harness and lifeline). Each treatment building is equipped with a rolling safety step ladder for use in accessing the top of carbon vessels, shelves, system pipes, valving, etc., as needed.

Heat Stress - Heat stress will be a consideration during O&M. When the working temperature exceeds 70°F and workers are wearing protective clothing, a heat stress monitoring program shall be implemented, as appropriate. Personnel shall have access to break periods and drinking water as necessary. Appendix D contains detailed information on heat stress.

Cold Stress - Exposure to cold and wet conditions is possible during Site activities. Personnel will be made aware of the hazard and advised to wear warm clothing and rain suits, as appropriate. Rain gear will be available for use on-site. When the temperature falls below 40°F, cold stress protocol shall be followed. Personnel shall wear adequate clothing to maintain body core temperature. Appendix D includes a detailed discussion of cold stress.

Eye Protection and Eye Wash - Protective eye wear shall be used during all operations involving the potential for eye injury or splash, and at least one approved eye wash unit must be available locally available as per 29 CFR 1910.151 (c). Each treatment building will be equipped with an eye wash unit.

Fire Protection/Fire Prevention - Operations involving the potential for fire hazards shall be conducted in a manner as to minimize the risk. Each treatment building will be equipped with a fire extinguisher. Non-sparking tools and fire extinguishers shall be used or available as appropriate. Sources of ignition shall be removed. When necessary, explosion-proof instruments and/or bonding and grounding will be used to prevent fire or explosion.

3.2 Chemical Hazards

Based on the previous Site investigation and remediation programs, PCBs and PNAs are the chemical hazards identified for the site. Detailed hazard information for PCBs and PNAs is provided in Appendix F. Appendix F also contains hazard information on hexane, which is used as an equipment cleaning solvent during sampling activities, chlorine and other chemicals used on site.

Polychlorinated Biphenyls (PCBs) - PCBs are the primary contaminants of concern. PCBs are listed as a toxic substance in the Toxic Substance Control Act. They consist of oily liquids that have adhered to the soil and sediments at the Site. PCBs have a low volatility and therefore the primary exposure route during O&M would be from direct contact with contaminated materials such as handling contaminated soil, water, or waste samples or from airborne dust. Airborne PCBs can be irritating to the eyes, nose, and throat. PCBs can also be absorbed through the skin, and can accumulate in the liver and in fatty tissues.

The predominant PCB congeners found on the Site are Aroclor 1242 and Aroclor 1248. Because PCBs are virtually insoluble in water and have a strong affinity to adsorb to organic material, the PCBs are strongly attached to sediments and soil at the Site. The PCBs were the major

component of a hydraulic heat transfer liquid marketed by Monsanto Corporation under the trade name Pydraul®. Pydraul®, used by OMC, contained varying concentrations of either PCB congener Aroclor 1242 or 1248 (or a mixture of both), indicating compounds are 42 or 48 percent chlorine by weight.

Polynuclear Aromatic Hydrocarbons (PNAs) - PNAs are anticipated to be of concern only in the New Slip area. Twelve-thousand (12,000) yards of PNA-contaminated soil were excavated from the New Slip area and stockpiled in a temporary soil stockpile.

PNAs, or coal tar pitch volatiles, include anthracene, benzo-a-pyrene (BaP), phenanthrene, acridine, chrysene, pyrene, and naphtha. Anthracene, BaP, phenanthrene, acridine, chrysene, and pyrene are designated by the American Conference of Governmental Industrial Hygienists (ACGIH) as human carcinogens with an eight-hour time-weighted average (TWA) of 0.2 mg/m³. The current OSHA Permissible Exposure Limit (PEL) for these compounds is also 0.2 mg/m³ benzene-soluble fraction (eight-hour TWA). The primary routes of exposure for these compounds are inhalation and contact, and the symptoms produced from exposure include dermatitis, bronchitis, and, in cases of prolonged exposure, cancer.

Exposure Routes - For most O&M activities, the likely potential route of exposure would be through skin contact with PCB or PNA contaminated water and sediment/soil. Personal exposures to chemicals of concern will be controlled through the use of personal protective equipment as described in Section 4.0.

Possible exposure pathways include the ingestion of Site soils and water, and absorption through the skin after direct contact with soil or sediment containing PCBs. Ingestion and absorption through the skin are of concern for personnel directly handling contaminated materials.

Exposure by skin absorption and ingestion will be minimized through the use of protective clothing and good personal hygiene practices. Boots, gloves, and Tyvek® coveralls or plastic aprons will provide necessary skin protection. Strict adherence to good personal hygiene practices and restricting eating, drinking, and smoking in work areas will mitigate ingestion. Wherever possible, workers should avoid handling and direct contact with Site materials, wastes, effluent, etc. At a minimum, workers should wash their hands after O&M activities that involve potentially contaminated soil or groundwater.

Airborne dust is not expected to occur during routine operation and maintenance activities. In the event that large areas of a contaminant cell's HDPE cover were to require removal, the contractor should evaluate airborne dust as an exposure pathway and incorporate appropriate procedures into its safety plan.

Material Safety Data Sheets - In accordance with the OSHA Hazard Communication Program (OSHA - 29CFR 1910.1200), OMC will make available at the Site, copies of MSDS sheets for all hazardous materials or compounds brought on-site. These will include such materials as diesel fuel, gasoline, hexane, chlorine, chlorine meter powder pillows, etc. MSDS training, as required by the standard, is conducted as part of the training OMC workers receive at OMC Waukegan. Appendix F includes copies of the Material Safety Data Sheets.

3.3 Confined Space Entry

A confined space is defined as a space or work area not designed for normal human occupancy, having limited means of access and poor natural ventilation, and/or any structure that has limited means of egress, including buildings or rooms. Examples include tanks, trenches, vats, basements, vaults, below-deck compartments, run-off pits, excavated area more than four feet deep, and other structures with the top open to air but so deep as to require entry to perform the work and require assistance for egress in case of emergency.

A confined space provides the potential for unusually high concentrations of contaminants, explosive atmospheres, limited visibility, and restricted movement. Additional information on confined space entry can be found in 29 CFR 1926.21(b)(6)(I) and 1926.21(b)(6)(ii), 29 CFR 1910, and NIOSH 80-106. Most anticipated O&M activities should not involve confined space entry; however, activities such as excavation should be evaluated for potential confined space hazards. Any such work required during O&M will be completed in accordance with OMC's Confined Space Program contained in Appendix E.

4.0 PERSONAL PROTECTION

Personnel shall wear personal protective equipment (PPE) when work or response activities involve known or suspected atmospheric contamination, when vapors, gases, or particulates may be generated by Site activities, or when direct contact with skin-affecting substances may occur. Full facepiece respirators protect lungs, the gastrointestinal tract, and eyes against airborne toxicants. Chemical-resistant clothing protects the skin from contact with skin-destructive and absorbable chemicals. When working over or near water, all levels of protection shall include USCG-approved buoyant vests as part of the required PPE.

The project health and safety officer will be responsible for determining the appropriate level of protection and may designate more stringent levels than those described where Site conditions warrant such action. The project health and safety officer will not reduce protection requirements as defined herein, unless granted approval by the corporate health and safety officer.

4.1 Protective Equipment

This section describes the general requirements of the U.S. EPA-designated Levels of Protection, and the specific levels of protection required for the expected O&M activities at the Site. The U.S. EPA terminology for protective equipment will be used: Levels A, B, C, and D. Levels D, modified-D, and C protective gear are designed for the project. The use of Levels A and B are not anticipated. The use of Level C is unlikely and is provided only as a contingency for non-routine maintenance or repairs that may involve invasive activities, wind-borne dust, or more direct contact with contaminated materials. If conditions occur that would require use of Levels A, B, or C protection, work shall be stopped, workers shall leave the hazard area, the OMC project manager and corporate safety officer shall be contacted, measures shall be taken to reduce the specific hazards, and the procedures shall be reevaluated before work continues.

PPE will be provided for use by on-site personnel. Level D protection will be required as a minimum for Site personnel. For activities which may involve direct contact with chemicals of concern such as through splashing, digging/drilling/excavation into contaminated soil/sediments, modified Level D protection will be utilized. All safety equipment will be National Institute for Occupational Safety and Health (NIOSH) and Mine Safety and Health Administration (MSHA) approved or in accordance with 29 CFR 1910.134. Respiratory protective equipment shall be NIOSH/MSHA approved and use shall conform to OSHA 29 CFR Part 1910.134 requirements.

All levels of protection requiring eye and face protection will, at a minimum, employ eye and face protection that meet the standards specified in 29 CFR Part 1926.102.

Modifications of these levels are permitted and are routinely employed during Site work activities to maximize efficiency and ensure adequate levels of protection. Reassessment of protection is discussed in detail in Section 4.4 of this document.

In addition, the project manager will evaluate PPE performance specifications relative to each specific task. Task-specific PPE appropriateness for each level of protection will be reviewed periodically by the project manager when new tasks arise, conditions change, or the HASP is updated.

4.2 Level D

Level D should be worn as a work uniform and not in areas of the Site that present respiratory or skin hazards. It provides minimal protection against chemical hazards. Level D PPE, at a minimum, shall be required for all on-site activities. Level D protection shall be used when:

1. The atmosphere contains no known hazard.
2. There is no visible airborne dust.
3. Expected concentrations of airborne PCBs are less than the threshold limit value (TLV) of 0.5 mg/m^3 .
4. Expected concentrations of total dust are less than 1 mg/m^3 .
5. Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with, hazardous concentrations of harmful chemicals.
6. Hazardous levels of PCB materials are not present or being handled.

Level D protection includes, but is not limited to, the following items:

1. Standard work uniforms or cloth coveralls or long pants and a shirt (long sleeved preferred).
2. Heavy boots or work shoes, steel-toed preferred and required for all operations involving heavy equipment (e.g., drilling, excavating, etc.).
3. Disposable vinyl or latex gloves.
4. Safety glasses (or comparable eye protection such as goggles or face shield).
5. Hardhat when there are overhead hazards, such as during well maintenance activities that involve pulling piping from wells, installing new wells, or excavation work.

Modified Level D protection shall be used when there is risk of splash, such as during groundwater sampling or drilling activities, but there is not an inhalation risk.

Modified Level D protection includes, but is not limited to, the following items:

1. Chemical-resistant coveralls such as Tyvek® (disposable), or reusable plastic aprons or smocks.
2. Neoprene® steel-toe boots or work boots/shoes with a waterproof bootie cover.
3. Water and chemical resistant gloves (e.g., latex, Neoprene®).
4. Safety glasses, goggles, or face shield.
5. Hardhat when there are overhead hazards.
6. Hearing protection, as required based on OSHA regulations.

4.3 Level C

Level C protection, although unlikely, shall be used when:

1. Skin protection, eye splash protection, and respiratory protection are required.
2. The types of air contaminants have been identified and an air purifying respirator (APR) is available that will remove the contaminants.
3. Concentrations of airborne contaminants are within the action levels specified in the activity - specific health and safety procedure (Appendix G).
4. Hazardous levels of PCB materials are present or are being handled.
5. Direct-reading instruments indicate the need for Level C.
6. The project health and safety officer or corporate health and safety manager indicates Level C is required.

The specifics for Level C protection include, but are not limited to, the following items:

1. Chemical-resistant coveralls such as Tyvek®.
2. Neoprene® steel-toe boots or work boots/shoes with a waterproof, chemical-resistant bootie cover.
3. Disposable inner gloves (e.g., latex or vinyl).
4. Disposable outer gloves (e.g., rubber, vinyl, Neoprene®) gloves.
5. Full face air purifying respirator (APR) equipped with a combination organic-type chemical cartridge or canister and a high-efficiency particulate (HEPA) filter.
6. Hardhat when there are overhead hazards.
7. Hearing protection, as required based on OSHA regulations.
8. Ankles and wrists taped up, securing protective coveralls to outer gloves and boots/boot covers.

4.4 Reassessment of Protection Program

The level of protection provided by PPE selection shall be upgraded or downgraded based upon a change in Site conditions or findings of new investigations. When a significant change occurs, the hazards should be reassessed. Some indicators of the need for reassessment follow:

1. Commencement of a new work phase.
2. Change in job tasks during a work phase.
3. Change of season/weather.
4. Chemicals, other than those previously identified, are being handled.
5. Change in ambient levels of chemicals.
6. Change in work scope which affects the degree of contact with chemicals.

The Level of Protection shall never be downgraded without the permission of corporate health and safety manager or the project health and safety officer.

5.0 EMERGENCY RESPONSE CONTINGENCY PLAN

It is essential that Site personnel be prepared in the event of an emergency. Emergencies can take many forms: illnesses, injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather. The following sections outline the general procedures for emergencies. Emergency information will be posted as appropriate.

5.1 Emergency Contacts

In the event of an emergency, both emergency response services and OMC representatives need to be contacted, as appropriate for the type of emergency. OMC Security should generally be contacted first and Security will contact local authorities with the appropriate on-site location information. Table 2 presents the current emergency contact list, and Figure 1 displays the hospital route map.

5.2 Project Personnel Responsibilities During Emergencies

The field health and safety officer has primary responsibility for responding to and correcting emergency situations. The field health and safety officer will work with the on-site staff to do the following:

1. Take appropriate measures to protect personnel including withdrawal from the exclusion zone, total evacuation and securing of the Site, or upgrading or downgrading the level of protective clothing and respiratory protection.
2. Ensure that in the event of fire or explosion, the local fire department is summoned immediately.
3. Ensure that appropriate decontamination, treatment, or testing for exposed or injured personnel is obtained.
4. Determine the cause of the incident and make recommendations to prevent a recurrence.
5. Ensure that all required reports have been prepared.

5.3 Medical Emergencies

Any person who becomes ill or injured while performing O&M activities involving contaminated materials must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first-aid administered prior to transport. If the person's condition is serious, at least partial decontamination should be completed (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket). First-aid should be administered while awaiting an ambulance or paramedics. All injuries and illnesses must immediately be reported to the project manager and the corporate safety officer.

Any person transporting an injured/exposed person to a clinic or hospital for treatment should take with them directions to the hospital and information on the chemical(s) to which the person may have been exposed. This information is included in Figure 1 and Appendix F.

5.4 Fire or Explosion

In the event of a fire or explosion, the local fire department should be summoned immediately. This is done by contacting the OMC Security office (ext. 6216 or 6215), who will provide the fire department the necessary on-site location. Upon their arrival, the project coordinator, or designated alternate, will advise the fire commander of the location, nature, and identification of the hazardous materials on-site.

If it is safe to do so, Site personnel may do the following:

1. Use fire-fighting equipment available on-site.
2. Remove or isolate flammable or other hazardous materials which may contribute to the fire.

5.5 Spills or Leaks

In the event of a spill or a leak, Site personnel will do the following:

1. Immediately contact one of the OMC Waukegan facility spill management contacts shown in Table 3, who will implement the facility's spill procedures.
2. Locate the source of the spillage and stop the flow if it can be done safely, as directed by the OMC facility contact.
3. Begin containment and recovery of the spilled materials.

6.0 MEDICAL SURVEILLANCE

A medical surveillance program provides a means of: (a) selection of employees who are physically able to perform the work assigned safely, and (b) monitoring their health on a regular basis

The program consists of a pre-assignment evaluation to determine fitness for the job assignment, annual evaluation based on length of assignment, and an end-of-employment evaluation. In addition, a special evaluation is warranted upon notification by the employee that he/she has developed signs or symptoms indicating possible exposure to hazardous substances.

6.1 Pre-Assignment Monitoring

Prior to an employee conducting Site activities that could result in exposure to Site contaminants, he/she shall undergo a pre-assignment medical examination.

The pre-assignment examination will include:

1. Complete medical history.
2. Physical examination.
3. Pulmonary function test.

The preassignment physical and documentation must categorize employees as fit for hazardous waste site duty and able to wear respiratory protection. No persons shall be permitted to wear a respirator until they have submitted medical certification documentation to the project or field health and safety officer.

6.2 Periodic Monitoring

Medical monitoring will be implemented for all Site workers actively included in O&M activities. All staff personnel included in an annual medical monitoring program will have had an examination which includes:

1. Medical history.
2. Physical examination.
3. Pulmonary function test.

In addition to a baseline physical, all employees require an updated physical every 12 months. The medical exam must fulfill the requirements of OSHA 29 CFR 1910.120.

All staff working in contaminated or potentially contaminated areas at the Site will verify currency (within 12 months) with respect to medical monitoring. Prior to commencing work, all contractors must furnish updated copies of physicals which categorize their on-site employees as fit for duty on a hazardous site and able to wear respiratory protection.

6.3 Medical Monitoring Following Exposures and Injuries

As a follow up to an injury or possible exposure, all OMC employees and subcontractors are entitled to and encouraged to seek medical attention and physical testing. Depending upon the type of potential exposure, it is critical to perform follow up testing within 24 to 48 hours. It will be up to the employer's medical consultant to advise the type of test required to accurately monitor for exposure effects. The project health and safety officer and corporate health and safety manager will also be called upon to advocate medical follow up of injuries and exposures.

6.4 Accident Reporting and Record-Keeping

In the event of an on-site accident, the following steps shall be taken:

1. Decontaminate injured persons to the extent possible dependent upon the severity of injuries.
2. The immediate on-site supervisor and project health and safety officer shall be informed of the situation.
3. Perform any emergency first-aid as necessary and contact OMC Security who will notify local Emergency Medical Systems (EMS).
4. EMS or local hospitals shall provide professional care as needed.
5. The project health and safety officer shall contact the corporate health and safety manager by phone, and the accident/loss reports shall be submitted within 24 hours of the accident (Appendix H).

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6. A copy of the Accident/Loss Reports shall be kept on-site.
7. The project health and safety manager shall complete the necessary OSHA paperwork, and it shall be submitted to the appropriate personnel.
8. A follow-up meeting shall be held to assess the safety plan and reporting system.

7.0 EMPLOYEE TRAINING

Personnel on-site will have training and/or prior experience which meets the requirements of 29 CFR 1910.120. The OMC corporate health and safety training program includes an initial, detailed course, plus an annual 8-hour update training. A minimum of an initial 24-hour course is required for workers involved in routine, generally non-invasive O&M activities. A 40-hour course is required for workers who will be involved in invasive activities (e.g., drilling, excavating).

7.1 Corporate Training Program

The corporate training program includes, at a minimum, the following items:

1. Chemical Hazards
2. Physical Hazards
3. Toxicology and Permissible Exposure Limits
4. Personal Protective Equipment and Protection
5. Respiratory Protection (29 CFR 1910.134)
6. Air Monitoring
7. Confined Spaces
8. Corporate Policies and Site Management
9. Supervision of Health and Safety
10. Site Control
11. Health and Safety Plans
12. Medical Monitoring and Treatment of Injuries
13. Osha Compliance
14. Personnel Training
15. Decontamination
16. Practical Exercises
17. Case Histories
18. Drum Handling
19. Hazardous Materials Handling
20. Material Safety Data Sheet (MSDS) Training

7.2 Site-Specific Training

On-site O&M workers will receive Site-specific training which includes:

1. Site Chemical Hazards (Including Acute and Chronic Effects)
2. Site Control and Decontamination
3. Emergency Procedures
4. Protection Levels and Equipment
5. Proper Use and Maintenance of Protective Equipment
6. Project Specific and Activity Specific Training Programs

All regulatory personnel, visitors, and servers needing access to areas that could present respiratory or skin-contact hazards will be expected to demonstrate compliance with all training requirements

7.3 Site Safety Meetings

Site safety meetings will be held to apprise personnel of specific hazards, monitoring results, changes in the Health and Safety Plan, or other topics determined by the corporate health and safety officer or OMC project manager. These meetings will be scheduled at the discretion of the health and safety officer, but will be held, at a minimum, at the beginning of a groundwater sampling event, at the initiation of any invasive field activity, at the time of any crew or subcontractor crew changes, and at least monthly thereafter if invasive activities continue for more than a one-month period.

Health and Safety Plan (HASP)
Operation & Maintenance Activities
Waukegan Harbor Remedial Action
Revision No: 0 Issued: December 1998

TABLES

Table 1
Project Work Activities Summary

Project work activities include water level measurement, well development, Site surveying, collection of groundwater and treatment plant water samples, collection of Site-derived waste samples, and recovery and treatment of water that has contacted the materials in the containment cells.

WAUKEGAN HARBOR REMEDIAL ACTION CONTAINMENT CELLS - WATER LEVEL MEASUREMENT, INSPECTION, PUMPING & REPAIRS		
ACTIVITY DESCRIPTION	FREQUENCY OF OCCURANCE	POTENTIAL HAZARD
Water level measurement in piezometers and monitoring wells	At least once per quarter	Contact with PCB-contaminated groundwater
Groundwater sample collection	Periodic (generally semi-annually)	Contact with PCB-contaminated groundwater
Treatment system sample collection	Based on system operation	Contact with PCB-contaminated groundwater
Treatment system operation and maintenance	As needed to maintain inward gradient	Contact with PCB-contaminated water and wastes
Site elevation surveys	Only as needed	None anticipated
Inspection of Cover	Annually	None anticipated
Waste disposal of materials and debris	As needed	Contact with PCB-contaminated wastes
Replacement of carbon in treatment systems	As needed	Contact with PCB-contaminated wastes
Well (recovery and monitoring) refurbishment	As needed	Contact with PCB-contaminated wastes
Cover repair	As needed	Contact with PCB-contaminated wastes
Landscaping	As needed	None

Note Project work activities with regard to the Temporary Designated Soil Stockpile (PNA cell) include: quarterly water level measurement, quarterly inspection, and pumping and repairs as needed. No potential hazards are anticipated, except during repairs.

Table 2
Emergency Contacts

<u>Emergency Service Phone Numbers</u>			
Emergency Service	Emergency Number	Non-Emergency Number	Address
Waukegan Fire Dept.	Dial 911	(847) 249-5410	
Waukegan Police Dept.	Dial 911	(847) 360-9000	
Ambulance Service	Dial 911		
St. Therese Medical Center **		(847) 249-3900	2615 Washington St. Waukegan
Victory Memorial Hospital **		(847) 360-3000	1324 N. Sheridan Rd. Waukegan
Poison Control Center	(800) 822-3232		

<u>OMC Emergency Phone Numbers</u>			
Emergency Contact	Day Phone	Evening Phone	Pager
OMC Security Attended 24 hours/day	(847) 689-6215 (847) 689-6216		
Robert Trinkl OMC Corporate Health & Safety Manager	(847) 689-7283	(414) 425-0907	(800) 643-1426
Lisa Bongiovanni Project Manager	(847) 689-6223	(773) 296-0875	(847) 314-5551
Sampling Coordinators Treatment System Operators	None	None	None
Marc Willis OMC EHS Environmental Specialist	(847) 689-5574	(847) 836-0803	(847) 314-5543
Tony Montemurro OMC Waukegan Environmental Coordinator	(847) 689-5363	(414) 552-8913	(847) 314-5561

** See Figure 1 for Hospital Map Route/Directions. Both hospitals have chemical trauma capabilities.

Table 3
OMC Waukegan Facility Spill Management Contacts

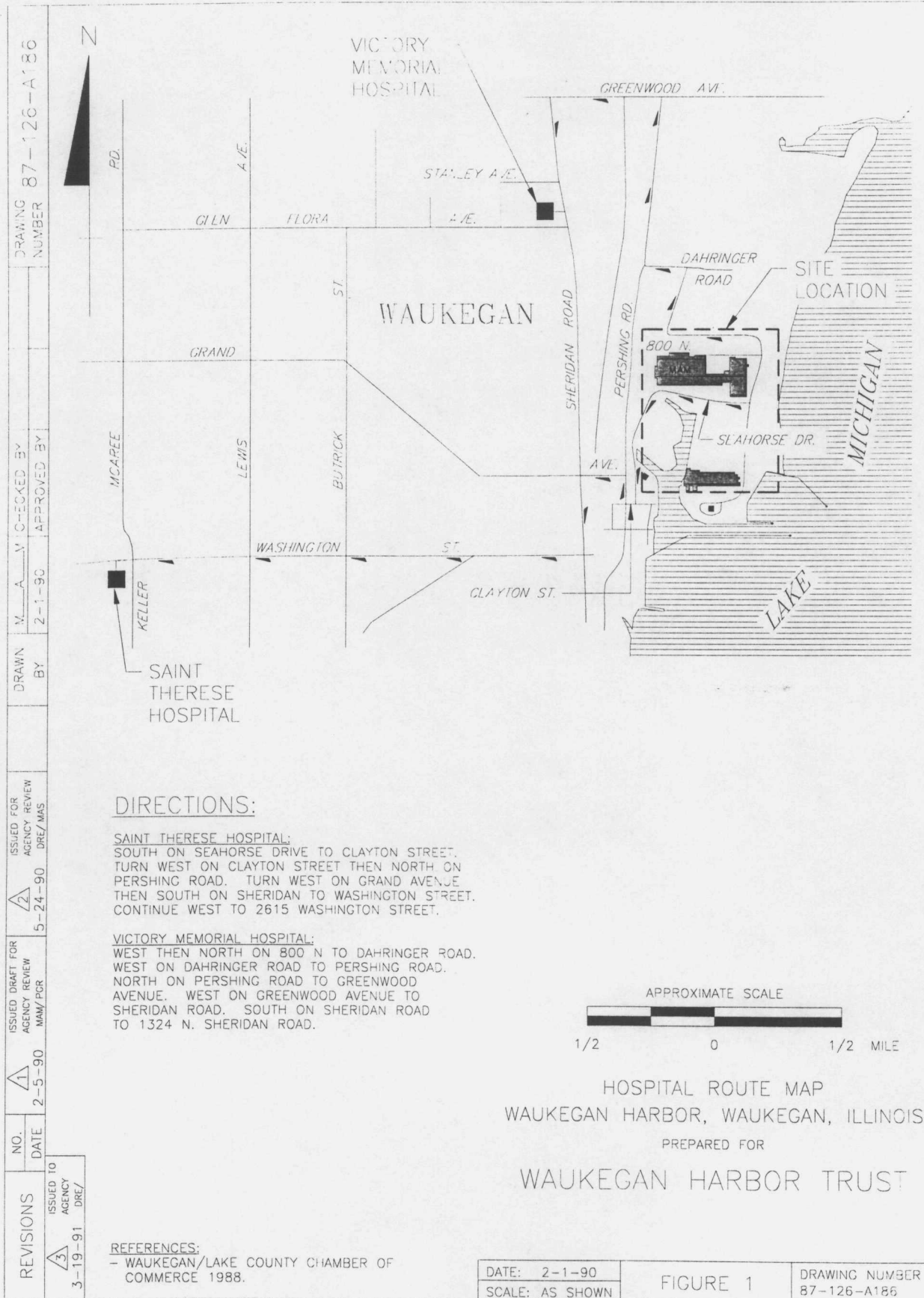
Note: Persons should be contacted in the order listed below.

<u>OMC Waukegan Facility Spill Management Contacts</u>			
Contact	Day Phone	Evening Phone	Pager
Tony Montemurro OMC Waukegan Env. Coordinator	(847) 689-5363	(414) 552-8913	(847) 314-5561
Tom Elsen Maintenance Manager	(847) 689-6053	(414) 857-2238	None
Brian Kucster Plant Engineering	(847) 689-5316	(414) 694-0105	(847) 314-5553
Ron Henseleit OMC Human Resources Manager	(847) 689-6190	(414) 245-1553	(847) 314-5597

Health and Safety Plan (HASP)
Operation & Maintenance Activities
Waukegan Harbor Remedial Action
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Figures

Figure 1
Hospital Route Map



Appendix A

Acknowledgement -

Remedial Action O&M Health and Safety Plan Receipt

Health and Safety Plan (HASP)
Operation & Maintenance Activities
Waukegan Harbor Remedial Action
Revision No: 0 Issued: December 1998

Acknowledgement -

Remedial Action O&M Health and Safety Plan Receipt

Per my signature below, I hereby acknowledge that I have received a copy of the Health and Safety Plan (HASP) for Operations and Maintenance Activities related to the Waukegan Harbor Remedial Action, Waukegan Harbor Superfund Site, Waukegan, Illinois.

Signature: _____ Date: _____

Please Print Name: _____

Company Name: _____

Health and Safety Plan (HASP)
Operation & Maintenance Activities
Waukegan Harbor Remedial Action
Revision No: 0 Issued: December 1998

Appendix B

OMC Waukegan General Safety Procedures

OMC Waukegan

A Facility of Outboard Marine Corporation

GENERAL SAFETY PROCEDURES

This pamphlet has been prepared for the purpose of making known to our employees safety procedures applying throughout OMC Waukegan.

These procedures have been established to assist employees in exercising the greatest care and judgement at their work.

You are requested to read these rules very carefully and then retain them as a guide for future reference.

A successful safety program is for everyone's mutual benefit. It can be accomplished through complete cooperation. As a condition of employment, it is the duty of all OMC employees to complete their daily work in a safe and efficient manner by following established safety procedures. The Company will do its part in the safety program by providing the employees safe procedures, healthy working conditions, and practical safety devices. Any degree of success, however, is dependent largely upon the sincere cooperation and interest of all employees.

Personal Protection

Wear snugly fitting clothes; never loose clothes, long sleeves, dangling neckties, loose trouser cuffs, jewelry, or other unsafe apparel while working around machinery.

FALLS HURT - BE ALERT

Wear suitable gloves when handling sharp-edged stock, scrap, or hot castings. Gloves are not permitted when operating moving machinery except on selected jobs which must be approved by the department supervisor.

Employees who work near or around moving machinery, and whose hair may become entangled in the machine, will be required to wear an approved hair cap, hat or net. Approved hair protection is furnished by the company and is available from the expense supply stores.

Wear shoes with soles sufficiently heavy to give adequate foot protection. On certain jobs, safety shoes may be required. Canvas shoes, tennis shoes, athletic shoes, sandals, etc., are not permitted in the factory.

Employees who work in high noise level areas must wear hearing protection.

Reporting of Injuries

All injuries must be reported to your supervisor immediately and to the Medical Department. First aid treatment will be provided.

General

It is your responsibility to report any guards which may have been removed from machines or any unsafe or unsanitary conditions to your supervisor.

Do not use air hoses for dusting clothes and hair. Blowing

THE RULE BREAKER IS THE ACCIDENT MAKER

compressed air at other employees is extremely dangerous and could result in serious injury.

Do not operate forklifts unless you have signed the jeep driver's verification form.

Always look both ways before stepping into aisles. Use the traffic mirrors.

Never operate machines that you are not authorized to run. If in doubt, see your supervisor.

Employees must know the location of fire fighting equipment in their department and know how to use it, if necessary. It is vitally important that all fire fighting equipment be kept clear and easily accessible.

Safety Glasses

Approved safety glasses are required in our plant. If you wear prescription glasses, you can purchase prescription safety glasses through the First Aid Department. The Company will pay the major portion of the cost of the glasses. Nonprescription safety glasses are provided by your supervisor at no charge to you.

Machinery

Machine power must be shutoff before attempting to remove stuck or jammed pieces of material or when attempting to pick up tools or other objects lying around or near the path of traveling parts.

Only authorized people are permitted to make repairs on machinery or electrical equipment.

BE SIGHT WISE - PROTECT YOUR EYES

Lifting

When lifting, keep your back straight and lift with your legs. If the load is too heavy, get help.

Housekeeping

Safety starts with good housekeeping. Each employee is responsible for the cleanliness of their area and their machines.

Do your part to keep oil, water, grease, and other slipping hazards off the floor.

When you finish a job, put tools, equipment, and materials where they belong.

Report unsatisfactory housekeeping conditions to your supervisor immediately.

Departmental Safety Practices

Safety rules and regulations are established for the protection of employees. Here at OMC Waukegan, we have general safety rules and "Departmental Safety Practices" which are rules which pertain specifically to the type of work being done in the department.

Each employee should have a copy of the "Departmental Safety Practices" for their area. If an employee is transferred into a new department, the employee should be given a copy of the "Departmental Safety Practices" for the new department.

WORK SAFELY

Do each job the safe way. Make safety a habit.

PROTECT YOUR FEET.....ON AND OFF THE JOB!

Most of us have never had severe foot problems. Therefore, we tend to forget our feet. However, ask the person who has had a fractured toe or foot and they will assure you that foot problems or foot injuries are very painful.

Most foot injuries can be prevented by wearing proper footwear, on and off the job.

When at work, safety shoes are required on some jobs and recommended on all jobs. Safety shoes not only offer protection to your feet from falling objects, they also provide proper foot support, which is important when you are standing on your feet all day. Safety shoes, with the proper soles, can prevent a slip or fall.

Sandals, high heels, or shoes with open toes or heels are not permitted in the factory at any time.

Canvas shoes, tennis shoes, and other athletic shoes are not permitted on the job.

Foot injuries can also occur off the job. Protect your feet when cutting the lawn, handling heavy objects, etc. Working at home with bare feet, sandals, or thongs is an invitation to a foot injury.

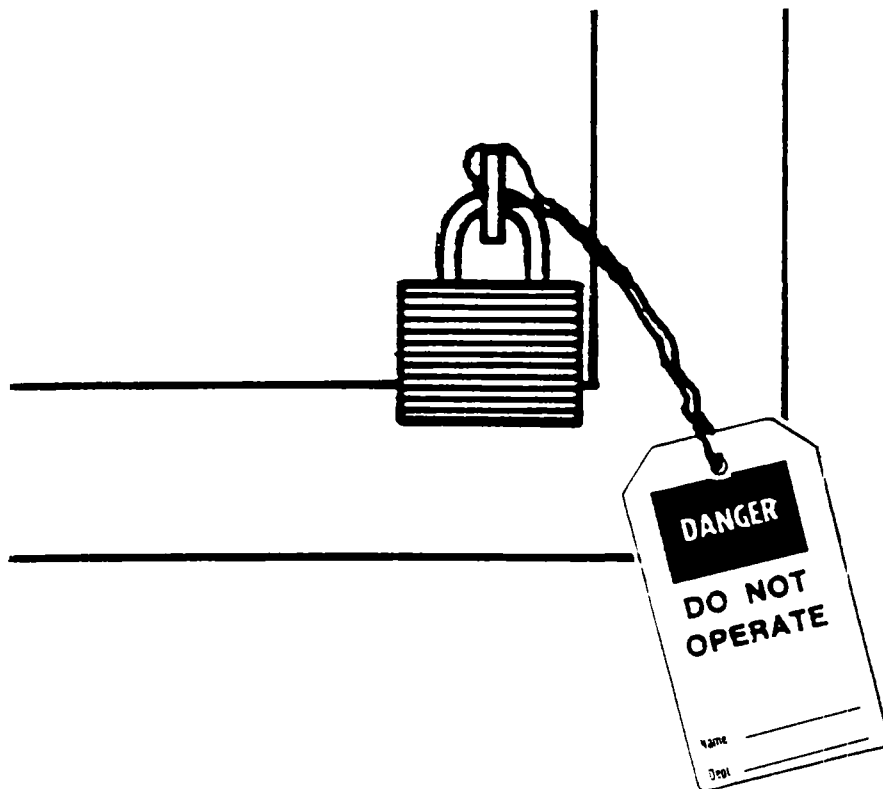
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Appendix C

OMC Corporate Safety Procedures - Lockout/Tagout

OUTBOARD MARINE CORPORATION

SAFETY LOCKOUT/TAGOUT PROCEDURE



NAME _____

DEPARTMENT _____

OUTBOARD MARINE CORPORATION

SAFETY LOCKOUT/TAGOUT PROCEDURE

Applies To: Individuals, contractors, and employees performing installation, maintenance, set-up, and repair of equipment, machines and systems at all facilities and locations of Outboard Marine Corporation.

Purpose: The purpose of this "Procedure" is to prevent injury to personnel and/or damage to equipment, machinery, or systems. This procedure shall be used to insure that machinery, equipment, or systems are isolated from all potentially hazardous energy and are locked/tagged out before personnel are allowed to work on machinery, equipment or systems.

Responsibility

It is the responsibility of OMC supervision to insure that all **AFFECTED** and **AUTHORIZED** employees or outside contractors performing work (i.e. installation, maintenance, set-up, repair, cleaning, etc.) are instructed in the safety significance of the OMC Lockout/Tagout Procedure. **AFFECTED** employees include all employees whose job requires them to operate or use machines, equipment or systems on which servicing or maintenance is being performed under lockout or tagout or whose job requires them to work in an area in which servicing or maintenance is being performed. A list of employees **AUTHORIZED** to lockout or tagout OMC equipment, machinery, or systems shall be maintained by the Employee Relations Department and distributed to each department. The maintenance department shall maintain a list of contractors authorized to lockout OMC equipment, etc. All **AFFECTED** employees, new or transferred, (i.e. machine operators, machine cleaners, etc.) must be trained on the OMC Lockout/Tagout Procedure.

Administration:

- I. The OMC Lockout/Tagout Procedure covers the servicing and maintenance of machines, equipment, and systems in which the unexpected energization or start-up of the machines, equipment, or systems, or release of stored energy could cause injury to employees. Normal production operations are not covered by this standard. Servicing and/or maintenance which takes place during normal production is covered by this standard if:

- A. An employee is required to remove or bypass a guard or other safety devices.
- B. An employee is required to place any part of their body into an area on a machine, piece of equipment, or system where work is actually performed upon material being processed (point of operation) or where an associated danger zone exists during a machine operating cycle.

II. Locks and Tagout Training and Practices

- A. All employees **AFFECTED** or **AUTHORIZED**, shall be trained. In addition, all employees **AUTHORIZED** to lockout/tagout machinery, equipment, or systems, shall be issued locks, tagouts, group lockout devices, and a copy of the OMC Safety Lockout/Tagout Procedure. Training shall consist of:
 - 1. The Supervisor will review the OMC Safety Lockout/Tagout booklet with each **AFFECTED** employee.
 - 2. The Supervisor will provide the following training for **AUTHORIZED** employees:
 - a. Recognition of applicable hazardous energy sources.
 - b. The type and magnitude of energy available in the workplace.
 - c. Methods and means necessary for energy isolation and control.
 - 3. **AUTHORIZED** employees must be re-trained on an annual basis.
 - 4. **AFFECTED** and **AUTHORIZED** employees must sign a copy of the Employee Training Record which will be filed in their personnel records.
 - 5. A copy of the OMC Safety Lockout/Tagout Procedure will be given to each **AUTHORIZED** employee.
 - 6. All employees receiving lockout/tagout training must sign the Employee Training Record form OMC #13127. One copy is to be placed in the employee's personnel file and another copy kept by the employee's supervisor. A third copy is to be given to the employee.

- B. Each lockout lock will be provided by OMC and must be keyed differently.
 - C. One extra key for each lockout lock shall be under the control of the employee's immediate Supervisor.
 - D. Each lockout lock/tagout must have the employee's name and department number on it.
 - E. Contractors will be responsible for providing their own locks, tagouts, and group lock devices. A list of contract employees **AUTHORIZED** to lockout/tagout machines, equipment, or systems, shall be provided to the maintenance department by each contractor.
 - F. If more than one individual is required to lockout or tagout a machine, equipment, or system, each individual shall place their personal lock or tagout on the energy isolated device. Group lock devices may be necessary to accommodate all locks.
 - G. If it is absolutely necessary to cycle a machine, equipment, or system to locate a problem, the safety lock may be temporarily removed. At this time, extreme caution must be exercised. All **AFFECTED** individuals must be notified of the condition and cleared from the area. Safety lock(s) must be re-applied before repairs or additional work is performed.
- III. All **AFFECTED** employees shall receive a copy of the OMC Lockout/Tagout Guidelines booklet from their immediate supervisor. **AFFECTED** employees include all employees whose job requires them to operate or use a machine, equipment, or system on which servicing or maintenance is being performed under lockout or tagout, or whose job requires them to work in an area in which servicing or maintenance is being performed.
- IV. Only **AUTHORIZED** employees are allowed to implement a lockout or tagout procedure on machines, equipment, or systems. **AUTHORIZED** employees must be trained in:
- A. Identification of Energy Sources
 - 1. All energy isolating devices (i.e. switches, valves, shut-off's, etc.) shall be identified on each machine, piece of equipment, or system. This includes recognition of applicable hazardous energy sources. Examples: air and hydraulic pressure, electrical energy, steam, mechanical energy (such as spring tension), and thermal (hot or cold) energy.

2. The type and magnitude of the energy available in the workplace. Examples: Electrical voltage, air line pressures, the spinning of a bull gear, grinding wheel or flywheel, hydraulic line pressures, static energy as in a press slide, etc.
3. All sources of power including electrical, air, hydraulic, water, and stored energy (i.e. springs, accumulators, etc.) must be de-energized and locked out before working on machinery, equipment or systems.
4. When equipment uses pneumatic or hydraulic power, pressure in the lines or accumulators shall be relieved. If pressure relief valves are not provided, the equipment shall be cycled until pressure is dissipated, or the pressure lines shall be opened at appropriate connections to relieve the pressure.
5. *When stored energy is a factor as a result of position, spring tension or counter weighting the equipment shall be placed in the bottom or closed position or shall be blocked to prevent movement.*
6. If a safety lock cannot be used on electrical equipment, OMC Management personnel may authorize an electrician to remove the fuses from the circuit. A tagout must be used.
7. In cases where other sources of power cannot be locked out, OMC Management personnel may authorize the use of a tagout to indicate a closed valve, lever, etc.
8. If work continues from one work shift to another, the original lockout/tagout shall be left in place until the work is completed. Additional lockout/tagout devices shall be added by each new crew. Supervisors will be responsible for removal of the original lockouts/tagouts when the job is completed. All **AFFECTED** employees from the other shifts must be notified of the completed operations.
9. Machinery, equipment, or systems shall not be shutdown by non-OMC personnel unless specifically authorized by OMC Management personnel.

- B. Tagouts give a false sense of security and may only be used when the use of a lock or lockout device is impossible. Tagouts must be approved by a supervisor prior to use. Tagouts must be securely attached to the energy isolating device. Sturdy attachment devices such as electrical tie straps are recommended for this purpose.
- C. All **AFFECTED** employees must be notified before the application or removal of a lockout or tagout device.
- D. All outside contractors must be made aware of the OMC Lockout/Tagout Procedure before working on machinery, equipment, or systems. A copy of the procedure must be provided by the department responsible for supervision of the contractor. Records must be kept indicating when and to whom the "Procedure" was given.
- E. Supervision must conduct periodic inspections to certify that the OMC Lockout/Tagout Procedure is being followed. These inspections must be certified by the completion of the *OMC Lockout/Tagout Certification Form OMC #13126*.
- F. When replacement, repair, renovation, or modification of machines, equipment, or systems is performed, and whenever new machines, equipment, or systems are installed, energy isolating devices for such machines, equipment, or systems shall be designed to accept a lockout device.

V. Re-starting

- A. The **AUTHORIZED** employee with the last lock or tagout to be removed shall not remove it unless the machine, equipment, or system has been checked. All tools, blocks, etc. must be removed from the machine, equipment, or system. Guards must be re-installed. Once the affected machine, equipment, or system has been checked and all **AFFECTED** individuals are notified and clear, the lockout/tagout may be removed and the machine, equipment, or system started.
- B. If an individual has left the facility or location and has forgotten to remove their safety lock and cannot be reached, and it is determined that the operation has been completed, only a Supervisor or Manager of that individual's department is authorized to give approval to remove the lock. All **AFFECTED** employees must be notified of the removal.

IF IN DOUBT, ASK YOUR SUPERVISOR

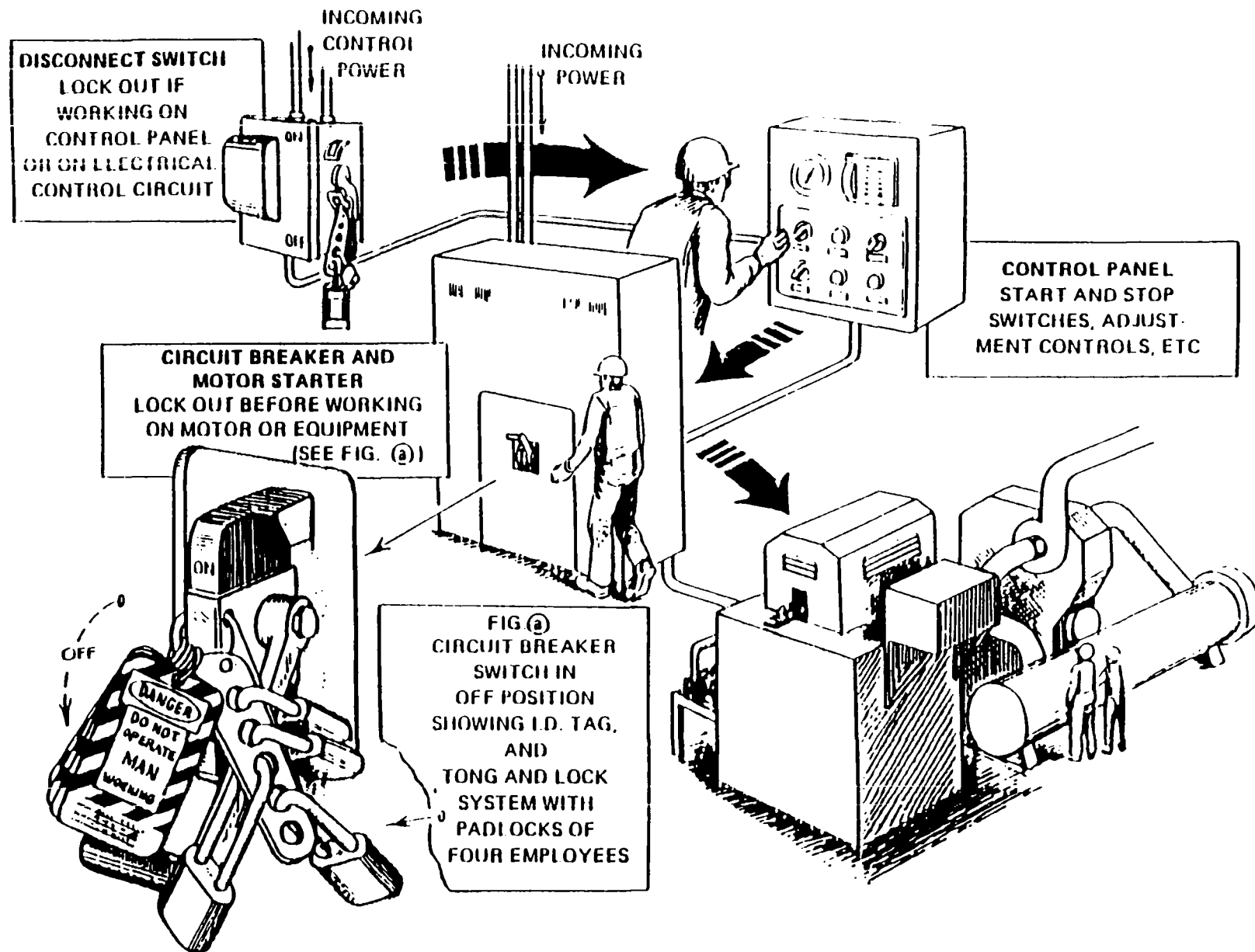


Illustration 1
Lockout/Tagout Procedure for Electrical Energy Source

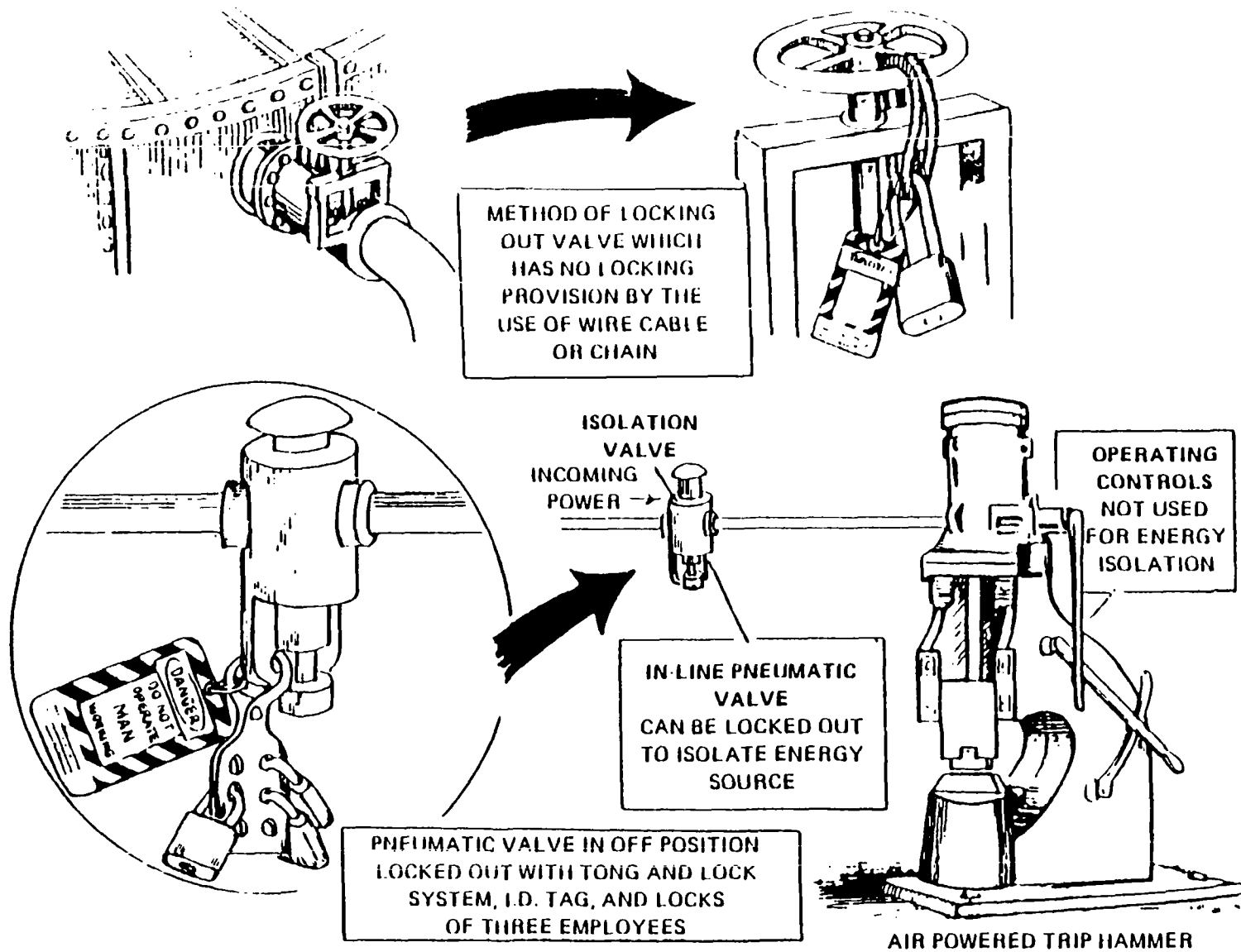


Illustration 2
Lockout/Tagout Procedure for Hydraulic-Pneumatic Energy Source

OUTBOARD MARINE CORPORATION
LOCKOUT/TAGOUT PROCEDURE FOR
ENERGIZED ELECTRICAL CIRCUITRY

This section of the Lockout/Tagout procedure applies to employees who are exposed to contact with parts of fixed electrical equipment or circuits which have been deenergized. All circuits energizing the parts shall be locked out or tagged or both in accordance with the following:

I. Deenergizing Equipment

- A. Safe procedures for deenergizing circuits and equipment shall be determined before circuits or equipment is deenergized. The procedures must be discussed with all affected employees.
- B. Circuits and equipment to be worked on must be disconnected from all electrical energy sources. Control circuit devices such as push buttons, selector switches, and interlocks may not be used as the sole means for deenergizing circuits or equipment. Interlocks for electric equipment may not be used as a substitute for lockout and tagging procedures.
- C. Stored electric energy which might endanger personnel shall be released. Capacitance elements shall be short-circuited and grounded, if stored energy might endanger personnel.

Note: If the capacitors or associated equipment are handled in meeting this requirement they shall be treated as energized.
- D. Stored non-electrical energy in devices that could reenergized electric circuit parts shall be blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device.

II. Application of Locks and Tags

- A. A lock and a tag shall be placed on each disconnecting means used to deenergize circuits and equipment on which work is to be performed. The lock shall be attached as to prevent persons from operating the disconnecting means. A lock and tag must be used, except in the following instances:

1. If a lock cannot be applied or if it can be demonstrated by the location that tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock, a tag may be used without a lock.
2. A lock may be placed without a tag only under the following conditions:
 - a. Only one circuit or piece of equipment is deenergized and
 - b. The lockout period does not extend beyond the work shift and
 - c. Employees exposed to the hazards associated with reenergizing the circuit or equipment are familiar with this procedure.
3. A tag used without a lock must be approved by a supervisor and be supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by the use of a lock. Examples of additional safety measures include the removal of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting device.

III. Verifications of Deenergized Conditions

Definition: Qualified Person - A qualified person is an individual who has received training in avoiding the electrical hazards of working on or near exposed energized parts. Their training must include:

- A. The skills and techniques necessary to distinguish exposed live parts from other parts of electrical equipment.
- B. The skills and techniques necessary to determine the nominal voltage of exposed line parts.
- C. Knowledge of the clearance distances specified in Exhibit A and the corresponding voltages to which the qualified person will be exposed.

In addition, a qualified person must be familiar with the proper use of special precautions, techniques, personal protective equipment, insulating and shielding materials and insulated tools.

The following procedure must be followed before any circuits or equipment can be considered and worked as deenergized.

1. A qualified person must operate the equipment controls or otherwise verify that the equipment cannot be restarted.
2. A qualified person must use test equipment to test the circuit elements and electrical parts of equipment which employees will be exposed and verify that the circuit elements and equipment parts are deenergized. The test shall also determine if any energized conditions exist as a result of inadvertently induced voltage or unrelated voltage backfeed even through specific parts of the circuit have been deenergized and presumed to be safe. If the circuit to be tested is over 600 volts, nominal, the test equipment shall be checked for proper operation immediately before and immediately after this test.

IV. Reenergizing Equipment

The following procedure must be followed in the order given before circuits or equipment are reenergized, even temporarily.

- A. A qualified person shall conduct tests and visual inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds and other such devices have been removed, so that the circuits and equipment can be safely energized.
- B. Employees exposed to the hazards associated with reenergizing the circuit or equipment shall be warned to stay clear of circuits and equipment.
- C. Each lock and tag shall be removed by the employee who applied it or under his or her direct supervision. However, if this employee is absent from the workplace, the lock or tag may be removed by a qualified authorized person designated to perform this task provided:
 1. The manager/supervisor must ensure that the employee who applied the lock or tag is not available at the workplace,
 2. The manager/supervisor must also ensure that the employee is aware that the lock or tag has been removed before he or she resumes work at that workplace.

- D. There shall be a visual determination that all employees are clear of the circuits and equipment.

Questions pertaining to the proper procedure to be used when working with electrical circuitry; energized parts, etc., should be referred to supervision immediately.

EXHIBIT A

When a qualified person is working in the vicinity of overhead electrical lines, whether in an elevated position or on the ground, the person may not approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown in the table below, unless:

- A. The person is insulated from the energized parts (gloves, with sleeves if necessary, rated for the voltage involved are considered to be insulation from the energized part on which work is performed), or
- B. The energized part is insulated both from all other conductive objects at different potential and from the person, or
- C. The person is insulated from all conductive objects at a potential different from that of the energized part.

APPROACH DISTANCES FOR QUALIFIED EMPLOYEES ALTERNATING CURRENT

VOLTAGE RANGE (PHASE TO PHASE)	MINIMUM APPROACH DISTANCE
300V and less	Avoid contact
Over 300V, not over 750V	1 ft. 0 in. (30.5 cm)
Over 750V, not over 2kV	1 ft. 6 in. (46 cm)
Over 2kV, not over 15kV	2 ft. 0 in. (61 cm)
Over 15Kv, not over 37kV	3 ft. 0 in. (91 cm)
Over 37kV, not over 87.5kV	3 ft. 6 in. (107 cm)
Over 87.5kV, not over 121kV	4 ft. 0 in. (122 cm)
Over 121kV, not over 140kV	4 ft. 6 in. (137 cm)

OMC LOCKOUT/TAGOUT CERTIFICATION FORM

Periodic inspections must be conducted by supervision to certify that AUTHORIZED employees are following the OMC Lockout/Tagout Procedure. As part of the certification process, the employee's supervisor will review the OMC Lockout/Tagout Procedure with the AUTHORIZED employee's. The supervisor will certify inspection and review by completing the following:

1. Machine, equipment, or system on which the Lockout/Tagout procedure was being used _____

2. Date of Inspection _____

3. Employees included in the inspection

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

4. Name of person performing the inspection

Signature

**OUTBOARD MARINE CORPORATION
EMPLOYEE TRAINING RECORD
SAFETY LOCKOUT/TAGOUT PROCEDURE**

AFFECTED EMPLOYEE

Employee Name _____

Employee Number _____

Employee Job Title _____

I received a copy of the OMC Safety Lockout/Tagout Guidelines booklet. My Supervisor has reviewed the booklet with me.

Employee's Signature _____ Date _____

Supervisor's Signature _____ Date _____

AUTHORIZED EMPLOYEE

Employee Name _____

Employee Number _____

Employee Job Title _____

I received the following training on the OMC Safety Lockout/Tagout Procedure.

- A. Summary of recognition of hazardous energy sources.
- B. The type of energy commonly found in the workplace.
- C. The methods and devices that are to be used to isolate energy.

I received a copy of the OMC Safety Lockout/Tagout Procedure. My Supervisor has reviewed the "Procedure" with me.

Employee's Signature _____ Date _____

Supervisor's Signature _____ Date _____

OMC LOCKOUT/TAGOUT CERTIFICATION FORM

Periodic inspections must be conducted by supervision to certify that AUTHORIZED employees are following the OMC Lockout/Tagout Procedure. As part of the certification process, the employee's supervisor will review the OMC Lockout/Tagout Procedure with the AUTHORIZED employee's. The supervisor will certify inspection and review by completing the following:

1. Machine, equipment, or system on which the Lockout/Tagout procedure was being used _____

2. Date of Inspection _____

3. Employees included in the inspection

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

4. Name of person performing the inspection

Signature

Appendix D

Heat and Cold Stress

APPENDIX D
HEAT & COLD STRESS
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2.2 Prevention of Heat Stress	D-3
2.3 Signs and Symptoms of Heat Stress	D-4
2.4 First Response Treatment for Heat Stress	D-5
3.0 Cold Stress	D-5
3.1 Factors Related to Cold Stress	D-5
3.2 Signs, Symptoms, and Results of Cold Stress	D-6
3.3 Prevention of Cold Stress	D-6
3.4 First Response Treatment for Cold Stress	D-5

Note: Information for this section obtained from the following sources:

American Conference of Governmental Industrial Hygienists. 1998 TLVs and BEIs: Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. Cincinnati, Ohio. 1998.

American National Red Cross. Community First Aid & Safety. Moseby Lifeline, St. Louis, Missouri. 1993.

HEAT & COLD STRESS

1.0 AMBIENT WEATHER MONITORING IN HEAT/COLD STRESS EVALUATION

Many of the operation and maintenance activities occur outside and may occur any time of the year. Weather can affect workers' abilities to perform these activities as well as the equipment and protective gear required to complete the activities. Therefore, workers and the OMC project manager/health and safety officer shall evaluate ambient working conditions for heat stress and cold stress environments, including monitoring wind speed and direction, temperature, relative humidity, and barometric pressure. The conditions should be used to select appropriate personal protective equipment (PPE) and to define work schedules and staffing required. In inclement or extreme temperature conditions, work should be postponed or limited only to essential tasks that can not be delayed. The American Conference of Governmental Industrial Hygienists' (ACGIH) guidelines for cold and heat stress are included as references at the end of this attachment.

2.0 HEAT STRESS

Wearing PPE puts hazardous waste workers at considerable risk of developing heat stress. This can result in health effects ranging from transient heat fatigue to serious illness or death. Heat stress is caused by a number of interacting factors, including environmental conditions, clothing, workload, and the individual characteristics of the person. Because heat stress is probably one of the most common (and potentially serious) illnesses at hazardous waste sites, regular monitoring and other preventive precautions are vital.

Individuals vary in their susceptibility to heat stress. Factors that may predispose someone to heat stress include:

1. Lack of Physical Fitness
2. Lack of Acclimatization
3. Age
4. Dehydration
5. Obesity
6. Alcohol and Drug Use
7. Infection
8. Sunburn
9. Diarrhea
10. Chronic Disease

Reduced work tolerance and the increased risk of excessive heat stress is directly influenced by the amount and type of PPE worn. PPE adds weight and bulk, severely reduces the body's access to normal heat exchange mechanisms (evaporation, convection, and radiation), and increases energy expenditure. Therefore, when selecting PPE, each item's benefit should be carefully evaluated in relation to its potential for increasing the risk of heat stress. Once PPE is selected, the safe duration of work/rest periods should be determined based on the:

1. Anticipated Work Rate
2. Ambient Temperature and Other Environmental Factors
3. Type of Protective Ensemble
4. Individual's Characteristics and Fitness

2.1 Monitoring for Heat Stress

The incidence of heat stress depends on a variety of factors; therefore, all individuals, even those not wearing PPE, should be monitored. For individuals wearing permeable clothing (e.g., standard cotton or synthetic work clothes), follow recommendations for monitoring requirements and suggested work/rest schedules in the current ACGIH threshold limit values (TLV) for heat stress. If the actual work clothing differs from the ACGIH standard ensemble in insulation value and/or wind and vapor permeability, change the monitoring requirements and work/rest schedules accordingly.

For individuals wearing semipermeable or impermeable encapsulating ensembles, the ACGIH standard cannot be used. For these situations, personnel should be monitored when the temperature in the work area is above 70° F (21° C).

To monitor personnel, one or all of the following measurements will be made at the discretion of the health and safety officer and/or the sampling coordinator:

- Heart Rate: Count the radial pulse during a 30-second period as early as possible in the rest period. If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period the same. If the heart rate still exceeds 110 beats per minute at the next rest period, shorten the following work cycle by one-third.
- Oral Temperature: Use a clinical thermometer (3 minutes under the tongue) or similar device to measure the oral temperature at the end of the work period (before drinking).

2.2 Prevention of Heat Stress

Proper training and preventive measures will help avert serious illness and loss of work productivity due to heat stress. Preventing heat stress is particularly important because once someone suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat injuries. To avoid heat stress, workers and the project manager should take the following steps:

- Adjust work schedules.
- Modify work/rest schedules according to monitoring requirements.
- Mandate work slowdowns as needed.
- Rotate personnel: alternate job functions to minimize overstress or overexertion at one task.
- Add additional personnel to work teams.
- Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat, i.e., 8 fluid ounces (0.23 liters) of water must be ingested for approximately every 8 ounces (0.23 kg) of weight lost. The normal thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace lost sweat. When heavy sweating occurs, encourage the individuals to drink more. The following strategies may be useful:
 - Maintain water temperature at 50° to 60° F (10° to 15.6° C).
 - Provide small disposable cups that hold about 4 ounces (0.1 liter).
 - Have personnel drink 16 ounces (0.5 liters) of fluid (preferably water or dilute drinks) before beginning work.

- Urge personnel to drink a cup or two every 15 to 20 minutes, or at each monitoring break. A total of 1 to 1.6 gallons (4 to 6 liters) of fluid per day are recommended, but more may be necessary to maintain body weight.
- Weigh personnel before and after work to determine if fluid replacement is adequate.
- Encourage personnel to maintain an optimal level of physical fitness:
 - Where indicated, acclimatize workers to Site work conditions: temperature, PPE, and workload.
 - Urge personnel to maintain normal weight levels.
- Provide cooling devices to aid natural body heat exchange during prolonged work or severe heat exposure. Cooling devices include:
 - Field showers or hose-down areas to reduce body temperature and/or to cool off protective clothing.
 - Cooling jackets, vests, or suits.
- Train personnel to recognize and treat heat stress. As part of training, identify the signs and symptoms of heat stress.

2.3 Signs and Symptoms of Heat Stress

Heat stress occurs in several different forms. The signs and symptoms vary and one form can lead to another form if left untreated. They will not necessarily occur in sequence and any one form may be the first identified. A description of the different types of heat stress, typical causes, signs, and symptoms follow:

- Heat rash or prickly heat may result from continuous exposure to heat or humid air and is caused by obstruction of sweat ducts that traps sweat under the skin. It can appear as characteristic minute fluid-filled bumps or lesions with mild inflammation, irritation ("prickling"), and frequently severe itching. When the obstruction and inflammation are deeper, the skin will appear red. Treat heat rash by cooling and drying the involved areas of skin and avoiding conditions that may induce sweating.
- Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include:
 - muscle spasms
 - pain in the hands, feet, and abdomen

- Heat exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include:
 - pale, cool, moist skin
 - heavy sweating
 - dizziness
 - nausea
 - fainting
- Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms are:
 - red, hot, usually dry skin
 - lack of or reduced perspiration
 - nausea
 - dizziness and confusion
 - strong, rapid pulse
 - coma

2.4 First Response Treatment for Heat Stress

When you recognize that someone is suffering from a heat-related illness:

- Get the victim out of the heat.
- Loosen tight clothing.
- Remove perspiration-soaked clothing.
- Apply cool, wet cloths to the skin.
- If the victim is conscious, give him or her cool water to drink.
- Call for an ambulance if the victim refuses water, vomits, or starts to lose consciousness.

3.0 COLD STRESS

During the winter, cold stress may be an occupational hazard during outdoor work that needs to be addressed. Like heat stress, it can occur in several forms that may or may not progress from one type to the other.

3.1 Factors Related to Cold Stress

Two factors influence the development of a cold injury: ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. For instance, 10.5° F with a wind of 15 miles per hour (mph) is equivalent in chilling effect to still air at -18.5° F.

As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration soaked.

3.2 Signs, Symptoms, and Results of Cold Stress

Persons working outdoors in temperatures at or below freezing may become frostbitten. Extreme cold for a short time may cause severe injury to the surface of the body or result in profound generalized cooling, causing death.

Local injury resulting from cold is included in the generic term frostbite. Areas of the body which have a high surface-area-to-volume ratio such as fingers, toes, and ears, are the most susceptible. There are several degrees of damage. Frostbite of the extremities can be categorized into:

- a. Frostbite, nip of initial frostbite: Characterized by sudden blanching or whitening of skin.
- b. Superficial frostbite: skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
- c. Deep frostbite: tissues are cold, pale, and solid; extremely serious injury.

- d. Systemic hypothermia is caused by exposure to freezing and rapidly dropping temperature. Its symptoms are visually exhibited in five stages:
- (1) shivering
 - (2) apathy, listlessness, sleepiness, and sometimes rapid cooling of the body to less than 95.5° F
 - (3) unconsciousness, glassy state, slow pulse, and slow respiratory rate
 - (4) freezing of the extremities
 - (5) death

3.3 Prevention of Cold Stress

Thermal socks, long insulating or thermal underwear, hard hat liners, and other cold weather gear can aid in the prevention of cold stress. In addition, blankets, warm drinks (preferably non-caffeinated), and warm break areas are essential.

Also, since water conducts heat 240 times faster than air, persons working outdoors should keep from getting wet. If one does get wet while working outside in cold weather, he/she should dry off and change clothes as soon as possible.

3.4 First Response Treatment for Cold Stress

When you recognize that someone is suffering from frostbite:

- Handle the affected area gently; never rub.
- Gently warm the area by soaking it in water no warmer than 105° F. Keep the frostbitten area in the water until it looks red and feels warm.
- Loosely bandage the area with a dry, sterile dressing. If fingers or toes are affected, place gauze between them.
- Do not break any blisters that may have formed.
- Get professional medical attention as soon as possible.

When you recognize that someone is suffering from hypothermia:

- Call for an ambulance.
- If you can, move the victim to a warm place.
- Remove any wet clothing and dry the victim.
- Warm the victim slowly by wrapping him or her in blankets or putting on dry clothes.
- Apply other sources of heat (i.e., chemical heat packs or hot water bottles) if they are available.

Health and Safety Plan (HASP)
Operation & Maintenance Activities
Waukegan Harbor Remedial Action
Revision No: 0 Issued: December 1998

Appendix E

OMC Corporate Safety Procedures- Confined Space Program

OMC

CONFINED SPACE

PROGRAM



OUTBOARD MARINE CORPORATION

CONFINED SPACE PROGRAM

- I. **Applies to:** Employees, contractors and vendors of OMC
- II. **Purpose:** The purpose of this procedure is to prevent injury or illness to all individuals involved in work in confined spaces at OMC (Location Name).
- III. **Definition:** Confined Space

A confined space falls within the following parameters:

- 1. A space large enough and so configured that an individual can bodily enter and perform assigned work, and
- 2. The space has limited or restricted means for entry or exit; tanks, vessels, silos, storage bins, hoppers, vaults and pits are spaces that may have limited means of entry and
- 3. The space is not designed for continuous occupancy.

IV. Identification and Evaluation of Confined Spaces

Responsibility: Human Resource/Location Manager

- 1. A location survey will be conducted to determine the presence of confined spaces. A written list of confined spaces will be maintained.
- 2. Each confined space will be evaluated for any potential hazards present. A written evaluation of each confined space will be compiled, OMC Form #13199, will be used. The evaluation will include:
 - A. Facility Name
 - B. Date of Survey
 - C. Name or area of confined space.
 - D. Location of confined space.

- E. Types of potential hazards associated with each individual confined space.
- 3. A confined space evaluation will be conducted by an individual trained in the use of air sampling instrumentation and the hazards associated with various industrial processes. The hazard evaluation will identify all potential hazards including but not limited to:
 - A. Percentage of oxygen present.
 - B. Toxic or asphyxiating atmospheres.
 - C. Confined space configuration including access ports, ladders used to enter the space, converging walls and/or tapered floors.
 - D. The possibility of engulfment due to substances such as water, dirt, chemicals, molten metal, etc.
 - E. The possibility of generating a toxic or oxygen deficient atmosphere by the work being performed in the confined space.

V. NOTIFICATION

- A. All confined spaces will be posted with a danger sign reading as follows:

**"DANGER
CONFINED SPACE
DO NOT ENTER"**

In addition, employees will be informed not to enter any posted confined space without proper authorization.

- B. A review of the confined spaces at OMC (Location Name) will be conducted by OMC management personnel. A decision will be made to determine if OMC (Location Name) personnel will be permitted to enter confined spaces, or if a non-entry confined space policy will be adopted.

NON-ENTRY CONFINED SPACE POLICY

- A. Employees at OMC (Location Name) will not be permitted to enter any posted confined space.
- B. Training: Employees will be notified not to enter any posted confined space.
- C. Contractors/vendors
 - 1. Contractors/vendors will be informed that the location contains confined spaces and that entry into a confined space is allowed only through compliance with a confined space program that complies with OSHA Standard 1910.146. A copy of their confined space program must be submitted along with their bid or quote.
 - 2. Contractors/vendors will be notified, in writing, of the known existing hazards in the confined space(s).
 - 3. Contractors/vendors will be advised in writing of any precautions or procedures that have been implemented for the protection of employees working in or near the confined spaces where the contractor's or vendor's personnel will be working.
 - 4. Entry operations will be coordinated with the contractors and vendors when both OMC employees and the contractor's/vendor's employees are working in or near a confined space area.
 - 5. If more than one contractor/vendor is working in a confined space area each contractor or vendor will submit a workplan to OMC and to each other so that the actions of one contractor or vendor do not endanger the employees of the other contractor or vendor.
 - 6. Confined space operations will be coordinated with the contractor or vendor when both the contractor's or vendor's employees and OMC employees will be working in or near confined spaces.
 - 7. Contractors/vendors will be debriefed at the conclusion of the confined space entry operations, regarding the confined space program followed and to review any hazards confronted or created in the confined spaces that were entered.

TRAINING

- A. All employees associated with confined spaces will be trained, including but not limited to entrants, attendants and entry supervisors.
- B. Training will be provided before an employee is assigned to duties under this program and if the employee's duties are changed.
- C. Retraining will be conducted if deviations or inadequacies in an employee's knowledge are observed.
- D. The employee's proficiency in assigned duties will be established. All training sessions will be documented in writing, to include:
 - 1. Date of the training
 - 2. Subject of the training
 - 3. The name of the person who conducted the training.
- E. Training provided under the OMC Confined Space Program will be reviewed by the Human Resource/Location Manager as needed to ensure that employees are adequately trained.

NON-PERMIT CONFINED SPACE

Responsibility: Determination of a *Non-Permit Confined Space* is the responsibility of the Human Resource/Location Manager or individual designated by them.

Definition: A *Non-Permit Confined Space* is a confined space that does not contain any atmospheric or other potential hazards capable of causing death or serious physical harm.

- A. **Location Survey:** A location survey will be conducted to determine the presence of *Non-Permit Confined Spaces*. A written list of *Non-Permit Confined Spaces* will be developed, OMC Form #13198 will be used. The name of the *Non-Permit Confined Space*, and its location will be listed.
- B. Each *Non-Permit Confined Space* will be evaluated to ensure that no actual or potential atmospheric hazards exist and that all hazards within the space can be eliminated without entering the confined space.

Note: Control of atmospheric hazards through continuous ventilation does not constitute elimination of the hazards.

- C. If it is necessary to enter a *Non-Permit Confined Space* to eliminate hazards, such entry will be conducted under the *Permit-Required Confined Space Entry* section of this program.
- D. Written documentation for determining that a confined space is hazard-free will be provided for each *Non-Permit Confined Space*.

Documentation will be recorded on OMC Form #13198.

- E. If any hazards should arise in the *Non-Permit Confined Space*, employees will immediately leave the confined space. The space will be re-evaluated to determine if it should be reclassified to a *Permit-Required Confined Space*.

PERMIT-REQUIRED CONFINED SPACE

Definition: A *Permit-Required Confined Space* has one or more of the following characteristics:

- A. Contains or has the potential to contain a hazardous atmosphere.
- B. Contains a material that has the potential for engulfing an entrant.
- C. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and/or tapers to a smaller cross-sectional area.
- D. Contains any other recognized serious safety or health hazards.

Permit-Required Confined Space can be divided into two categories:

1. ***Permit-Required Confined Space - Hazardous Atmospheric Only***
This is a confined space in which the hazardous atmosphere can be eliminated through the use of continuous forced air ventilation.
2. ***Permit-Required Confined Space***
This is a confined space which may contain physical as well as atmospheric hazards exceeding the Permissible Exposure Limits.

PERMIT-REQUIRED CONFINED SPACE - ATMOSPHERIC HAZARD ONLY

An alternate confined space entry procedure can be used if it can be shown that:

- A. The only hazard posed by this type of *Permit-Required Confined Space* is an actual or potentially hazardous atmosphere.
- B. Continuous forced air ventilation is sufficient to maintain a safe atmosphere in this type of *Permit-Required Confined Space*.
- C. Periodic historical monitoring and inspection records have shown that the only hazard present is a potentially hazardous atmosphere and that forced air ventilation can alleviate the atmospheric hazard.
- D. If initial entry into this type of *Permit-Required Confined Space* is necessary to obtain data, entry will be done in accordance with the *Permit-Required Confined Space* procedure of this program.
- E. All records relating to monitoring and inspection of this type of *Permit-Required Confined Space* will be made available to each entrant.
- F. Necessary safety precautions are taken to eliminate unsafe conditions and ensure employee safety before removing a cover leading to a confined space.
- G. All entrance areas are guarded by a railing, temporary cover or other temporary barrier to prevent personnel from falling into the opening and to prevent foreign objects from falling into the confined space.
- H. The internal atmosphere of the space is checked with direct reading calibrated instruments in the following order:
 - 1. Oxygen
 - 2. Flammable gases or vapors
 - 3. Potentially toxic air contaminants
- I. There is no hazardous atmosphere in this type of *Permit-Required Confined Space* when an entrant is inside the space.

- J. There is continuous forced air ventilation when an entrant is in this type of *Permit-Required Confined Space*. An entrant cannot enter the space until the forced air ventilation has eliminated the hazardous atmosphere.
- K. Air supply for the forced air ventilation is from a clean air source and may not increase the hazards in the confined space.
- L. The atmosphere within this type of *Permit-Required Confined Space* is checked periodically to insure that it remains within safe limits.
- M. If a hazardous atmosphere is detected in this type of *Permit-Required Confined Space*:
 - 1. The entrant(s) will immediately evacuate the confined space.
 - 2. The confined space will be re-evaluated to determine how and why the hazardous atmosphere developed.
- N. Measures are taken to protect entrants from the hazardous atmosphere before any re-entry is permitted.
- O. The confined space is re-certified safe before entry is allowed. Re-certification will be documented on OMC Forms #13196 and #13197.

Note: An attendant may be utilized when entering a *Permit-Required Confined Space* with atmospheric hazard only, however, the presence of an attendant is not mandatory.

PERMIT-REQUIRED CONFINED SPACE

1. Pre-Entry Procedures

Responsibility: Human Resource/Location Manager is responsible for determining that the following action has been taken.

The following will be completed before the *Permit-Required Confined Space* will be entered.

- A. Isolate the *Permit-Required Confined Space* area. Blank off all incoming pipes, chutes, etc. Complete an OMC Confined Space Pre-Entry Checklist, OMC Form C. Implement the OMC Safety Lockout/Tagout procedure.
- B. Initiate the OMC Hot Work Safety Checklist (OMC #8213) if welding, cutting or other types of Hot Work is to be performed in the confined space.
- C. Purge, inert, flush or ventilate the *Permit-Required Confined Space* to eliminate or control atmospheric hazards.
- D. Warning barriers have been provided to designate the *Permit-Required Confined Space* area.
- E. Evaluate the atmospheric conditions in the *Permit-Required Confined Space* before authorizing entry. Complete the *Permit-Required Confined Space* pre-entry permit, OMC Form #13197.
- F. Provide necessary protective equipment to the entrant, i.e., gloves, boots, suit, non-sparking tools, etc.
- G. Provide the entrant with instrumentation to continuously monitor the atmospheric conditions in the *Permit-Required Confined Space*.
- H. Provide for communication between the entrant and the attendant.
- I. Provide necessary equipment needed for safe egress such as ladders, explosion-proof lighting, etc.

J. Provide suitable rescue equipment for the job being performed including but not limited to:

1. Respiratory Protection
2. Full body harness(es)
3. Lifeline(s)
4. Mechanical personnel lifting device, if indicated.

K. Provide necessary telephone numbers of outside rescue services, i.e., fire department/emergency medical services or 911 service.

L. Attendants

1. Designate an entry supervisor, confined space attendant and employee who is trained to test for atmospheric hazards in the *Permit-Required Confined Space*.
2. Whenever a *Permit-Required Confined Space* is occupied, a trained attendant will be present outside the *Permit-Required Confined Space*.
3. Provide the attendant with a means of communicating with the entrant.
4. Review the known atmospheric and physical hazards of the *Permit-Required Confined Space* with the attendant(s). In addition, review the Material Safety Data Sheets for materials which may be present in the *Permit-Required Confined Space*.
5. Review rescue procedures with the entrant, entry supervisor, and attendant including the use and deployment rescue services.

M. **Contractors/Vendors:** Coordinate *Permit-Required Confined Space* entry procedures with contractors/vendors in the area so that they do not endanger OMC employees or other contractors/vendors performing work in the *Permit-Required Confined Space* or in the immediate permit area. Review the OMC Confined Space Program with the contractors/vendors.

2. Entry Permit Procedure

- A. OMC Entry Permit Form #13197 will be completed before entering any *Permit-Required Confined Space*.
- B. The OMC Entry Permit will be displayed at or in the *Permit-Required Confined Space*.

- C. The OMC Entry Permit will be signed by the entry supervisor.
- D. A designated time interval for work in the *Permit-Required Confined Space* will be stated on the OMC Entry Permit.
- E. The entry supervisor will terminate entry and cancel the permit if:
 - 1. The operations covered by the OMC Entry Permit are completed.
 - 2. A condition develops that is not allowed under the OMC Entry Permit in or near the permit space.
- F. The OMC Confined Space Program will be reviewed by the Human Resource/Location Manager at least once every 24 months. The review will cover all canceled confined space entry permits. The purpose of the review is to ensure that employees participating in confined space entry operations are protected from hazards associated with confined spaces. Revisions to the OMC (Location Name) Confined Space Program will be made if needed. If no confined space entry has been made during the proceeding 12 months, a review is not required.

DUTIES OF AUTHORIZED ENTRANTS

- A. Entrants will be made aware of the hazards present during entry into the confined space and the mode, signs, symptoms and consequences of exposure. This will include a review of the MSDS by the entrants for materials which may be present in the confined space.
- B. Entrants will be trained how to properly use direct reading detection instrumentation.
- C. Entrants will be provided with instrumentation to continuously monitor the atmospheric conditions in the confined space.
- D. Entrants will be provided with a means of communicating with their attendant(s).
- E. Entrants must leave the confined space if:
 - 1. Instructed to do so by the entry supervisor or attendant.
 - 2. A prohibited condition is detected.
 - 3. An evacuation alarm is sounded.
 - 4. The entrant recognizes a sign or symptom of a dangerous condition or situation.

DUTIES OF ATTENDANT

- A. Be alert for the hazards associated with the confined space including the mode, signs, symptoms and consequences of exposure.
- B. Be aware of the behavioral effects of hazard exposure.
- C. Maintain an accurate account of entrants in the confined space and be able to identify the authorized entrants.
- D. Remain in communication with the entrants.
- E. Monitor activities inside and outside the confined space to ensure the entrant's safety.
- F. Notify entrants to evacuate if:
 - 1. A hazardous condition is detected.
 - 2. The entrant shows behavioral effects of the hazardous substance.
 - 3. Conditions outside the confined space change that could endanger the entrant.
 - 4. A condition occurs that will prevent the attendant from performing his/her duties.
- G. Summon emergency rescue services should the need arise.
- H. Control unauthorized entrants.
 - 1. Warn unauthorized entrant(s) to stay away from the permit site.
 - 2. Require unauthorized entrant(s) to leave the permit confined space permit area.
 - 3. Inform authorized entrants that unauthorized entrants have entered the confined space area.
- I. **Non-Entry Rescue by Attendant:** An attendant may extract an entrant from a confined space if he/she can do so by not entering the confined space.
- J. Attendants will not be permitted to perform any duties that could interfere with their ability to monitor and protect the entrant.

DUTIES OF THE ENTRY SUPERVISOR

- A. The entry supervisor must be aware of the hazards of the confined space, including mode, signs, symptoms and consequences of exposure.
- B. Verify that an entry permit has been completed properly and that all required equipment is present and functioning properly before the entrant is permitted to enter the confined space.
- C. Terminate entry into the confined space if indicated.
- D. Verify the availability of emergency rescue services.
- E. Remove all unauthorized entrants from the confined space area.
- F. Ensure that all permit conditions are met and that no hazardous conditions have arisen.
- G. Transfer responsibility for supervision of a confined space entry operation to another qualified and authorized relief person.

NON-ENTRY RESCUE

A non-entry rescue may be facilitated by employees of OMC (Location Name). However, to facilitate non-entry rescue, retrieval systems will be used whenever an authorized entrant enters a confined space, unless the retrieval equipment would increase the overall risk of entry, or would not contribute to the rescue of the entrant.

- A. A rescuer may extract an entrant from a confined space if he/she can do so by not entering the confined space.
- B. **Body Harness:** Each authorized confined space entrant will wear a chest or full body harness with a retrieval line attached at the center of the entrant's back near the shoulder level or above the entrant's head.
- C. **Wristlets:** Wristlets may be worn in place of a chest or body harness only if the use of a chest or body harness is not feasible, or would create a greater hazard than the use of wristlets and is the safest most effective alternate.

RETRIEVAL LINES

The opposite end of the retrieval line from the entrant will be attached to a mechanical retrieval device, or a fixed point outside of the permit confined space to allow the rescuer to begin rescue as soon as they become aware that rescue is necessary.

MECHANICAL PERSONNEL LIFTING DEVICES

Mechanical personnel lifting devices will be readily available to retrieve personnel from vertical permit confined spaces more than 5 feet deep.

RESCUE SERVICE (OTHER THAN OMC PERSONNEL)

Confined space rescue at OMC (Location Name) will be performed by (Name of Rescue Service/Fire Department). The following procedures will be followed:

- A. The (Name of Rescue Service/Fire Department) will be informed that they will be notified when rescue from a confined space is needed at OMC (Location Name).
- B. The (Name of Rescue Service/Fire Department) will be requested to visit OMC (Location Name) to become familiar with the types of confined spaces that are present so that they can develop appropriate rescue plans and practice on site rescue operation.

OMC EMPLOYEE RESCUE TEAM

OMC (Location Name) Employee Rescue Team will be established, training will be provided. Actual field practice will be conducted by team members.

- A. Each member of the OMC (Location Name) Employee Rescue Team will be provided with, and trained how to properly use the necessary personal protective equipment, and rescue equipment for conducting rescues from the confined spaces at the location.
- B. Rescue team members will receive similar training as required for authorized confined space entrants. Training will also be provided in basic first aid, cardiopulmonary resuscitation (CPR), and bloodborne diseases.
- C. Rescue team practice will include removal of persons or manikins from actual or simulated confined spaces. Each team member will participate in the training at least once every twelve months. Training will be documented. Documentation will include:
 - 1. Team members name
 - 2. Date of training
 - 3. Subjects covered
- D. When conducting a confined space rescue at least one member of the rescue team present at the site will possess a current certification in first aid and CPR.

MEDICAL INFORMATION

If an entrant is exposed to a substance for which a MSDS or other similar written information is required to be kept at the worksite, that MSDS or written information shall be made available to the medical facility treating the exposed entrant.

PROGRAM REVIEW

The OMC (Location Name) Confined Space Program will be reviewed by the Human Resource/Location Manager at least once every 12 months. The review will cover all canceled confined space entry permits. The purpose of the review is to ensure that employees participating in confined space entry operations are protected from hazards associated with confined spaces. Revisions to the program will be made if indicated. If no confined space entry has been made during the proceeding 12 months a review is not required.

PERMIT DETERMINATION CHECKLIST

TYPE OF CONFINED SPACE TO BE ENTERED	TYPES OF PERMIT/CHECKLISTS REQUIRED
<i>NON-ENTRY CONFINED SPACE POLICY</i>	None required
<i>NON-PERMIT CONFINED SPACE</i>	Complete checklist OMC Form #13198.
<i>PERMIT REQUIRED CONFINED - <u>ATMOSPHERIC HAZARD ONLY</u></i>	Complete the following: A. Pre-entry checklist OMC Form #13196 B. Entry checklist OMC Form #13196. C. Entry permit OMC Form #13197.
<i>PERMIT REQUIRED CONFINED SPACE</i>	Complete the following: A. Pre-entry checklist OMC Form #13196 B. Entry checklist OMC Form #13196. C. Entry permit OMC Form #13197.

OUTBOARD MARINE CORPORATION

CONFINED SPACE EVALUATION

FACILITY _____

DATE	NAME OF CONFINED SPACE	LOCATION OF CONFINED SPACE	TYPES OF POTENTIAL HAZARDS FOUND IN CONFINED SPACE*

*Types of hazards can include toxic atmospheres, engulfment, configurations of confined space, limited access, augers, etc.

SIGNATURE _____

OUTBOARD MARINE CORPORATION

CONFINED SPACE ENTRY PERMIT

PERMIT VALID FROM: _____ A.M. _____ P.M. TO: _____ P.M. _____ DATE: _____

ALL COPIES OF PERMIT WILL REMAIN AT JOB SITE UNTIL JOB IS COMPLETED

SITE LOCATION AND DESCRIPTION _____

PURPOSE OF ENTRY _____

SUPERVISOR(S) IN CHARGE OF CREWS _____

BOLD DENOTES MINIMUM REQUIREMENTS TO BE COMPLETED AND REVIEWED PRIOR TO ENTRY

REQUIREMENTS COMPLETED	DATE	TIME	REQUIREMENTS COMPLETED	DATE	TIME
LOCKOUT/DE-ENERGIZE/TRY-OUT	_____	_____	FULL BODY HARNESS W/"D" RING	_____	_____
LINE(S) BROKEN-CAPPED-BLANKED	_____	_____	EMERGENCY ESCAPE RETRIEVAL EQUIP	_____	_____
PURGE-FLUSH AND VENT	_____	_____	LIFELINES	_____	_____
VENTILATION	_____	_____	FIRE EXTINGUISHERS	_____	_____
SECURE AREA (POST AND FLAG)	_____	_____	LIGHTING (EXPLOSIVE PROOF)	_____	_____
BREATHING APPARATUS	_____	_____	PROTECTIVE CLOTHING	_____	_____
RESCUE PERSONNEL AVAILABLE	_____	_____	RESPIRATOR(S) (AIR PURIFYING)	_____	_____
HOT WORK SAFETY CHECK LIST	_____	_____			

NOTE: ITEMS THAT DO NOT APPLY ENTER N/A IN THE BLANK.

CONTINUOUS MONITORING**

TEST(S) TO BE TAKEN _____

PERCENT OF OXYGEN _____

LOWER FLAMMABLE LIMIT _____

CARBON MONOXIDE _____

PERMISSIBLE

ENTRY LEVEL

19.5% TO 23.5%

UNDER 10%

UNDER 35 PPM

**RECORD CONTINUOUS MONITORING RESULTS EVER 2 HOURS

_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

SAMPLING CONDUCTED BY:

EMPLOYEE NAME & # _____

INSTRUMENT(S) USED _____

MODEL &/OR TYPE _____

SERIAL &/OR UNIT # _____

SAFETY ATTENDANT REQUIRED? YES _____ NO _____

NAME OF EMERGENCY RESCUE _____ TELEPHONE # _____

REQUIRED SAFETY PRECAUTIONS HAVE BEEN TAKEN. PERMISSION TO ENTER CONFINED SPACE IS AUTHORIZED.

SIGNED: _____ DATE _____ TIME: _____ A.M. _____ P.M. _____

ENTRY SUPERVISOR

OUTBOARD MARINE CORPORATION

NON-PERMIT CONFINED SPACE

FACILITY[illegible]

OUTBOARD MARINE CORPORATION

CONFINED SPACE PRE-ENTRY CHECKLIST

ONE LOCATION: _____

DATE: _____ TIME _____ A.M.
P.M.

PERMIT AREA: _____

EQUIPMENT TO BE WORKED ON: _____

ENTRY (REFER TO OMC CONFINED SPACE PROCEDURE)

	N/A	YES	NO
OMC HOT WORK SAFETY CHECKLIST IMPLEMENTED?	()	()	()

	N/A	YES	NO
MSDS REVIEWED FOR SUBSTANCES IN CONFINED SPACE.	()	()	()

ATMOSPHERE SAMPLED:	TIME SAMPLED		
OXYGEN	_____	%	
EXPLOSIVE	_____	L.F.L.	
TOXIC	_____	PPM	

	N/A	YES	NO
OMC SAFETY LOCKOUT/TAGOUT IMPLEMENTED?	()	()	()

	N/A	YES	NO
SOURCE ISOLATION (NO ENTRY): PUMPS OR LINES BLINDED, DISCONNECTED, OR BLOCKED?	()	()	()

	N/A	YES	NO
VENTILATION REQUIRED?	()	()	()
MECHANICAL?	()	()	()
NATURAL VENTILATION ONLY?	()	()	()

ATMOSPHERE SAMPLED AFTER ISOLATION AND VENTILATION:

	TIME SAMPLED	ACCEPTABLE LEVELS
OXYGEN	_____	% > 19.5 %
EXPLOSIVE	_____	% L.F.L. < 10 %
CARBON MONOXIDE	_____	35 PPM
TOXIC	_____	PPM < PPM

ABOVE CHECKS WERE CONDUCTED AND RESULTS RECORDED AS NOTED.

SIGNATURE: _____

EMPLOYEE NO.: _____

CONFINED SPACE ENTRY CHECKLIST

DATE: _____ TIME: _____ A.M.
P.M.

TIME PERMIT VALID FROM: _____ A.M. TO: _____ A.M.
P.M. P.M.

WORK TO BE PERFORMED: _____

ENTRY (REFER TO OMC CONFINED SPACE PROGRAM)

	N/A	YES	NO
1. ATTENDANT REQUIRED?	()	()	

	N/A	YES	NO
2. PERSONNEL CURRENTLY TRAINED			

	N/A	YES	NO
ENTRANT?	()	()	()
ATTENDANT?	()	()	()
RESCUER?	()	()	()

	N/A	YES	NO
3. EQUIPMENT:			

	N/A	YES	NO
ATMOSPHERIC MONITORING INSTRUMENT CALIBRATED?	()	()	()

	N/A	YES	NO
SAFETY HARNESSSES AND LIFELINES FOR ENTRY AND ATTENDANT?	()	()	()

	N/A	YES	NO
PERSONNEL HOISTING EQUIPMENT?	()	()	
POWERED COMMUNICATIONS?	()	()	

	N/A	YES	NO
SCBA'S FOR ENTRY AND RESCUE PERSONNEL?	()	()	

	N/A	YES	NO
PROTECTIVE CLOTHING?	()	()	

	N/A	YES	NO
ALL ELECTRIC EQUIPMENT EXPLOSION PROOF AND NON-SPARKING TOOLS	()	()	()

4. EMERGENCY RESCUE PROCEDURE:

REVIEWED AND APPROVED BY ENTRY SUPERVISOR, ENTRY CANNOT BE APPROVED IF ANY MARKS ARE IN THE "NO" COLUMN.

SIGNATURE: _____ TIME: _____ A.M.
P.M.



DANGER

CONFINED SPACE

DO NOT ENTER

Appendix F

Site Specific Chemical Hazard Information

- | | |
|------------|--|
| F-1 | Polychlorinated Biphenyls (PCBs) |
| F-2 | Polynuclear Aromatic Hydrocarbons (PNAs) |
| F-3 | Hexane (not currently used; section reserved) |
| F-4 | Chlorine and Chlorine Meter Powder Pillows |
| F-5 | Gasoline |

Appendix F-1

Chemical Hazard Information -

Polychlorinated Biphenyls (PCBs)

CHEMTOX ID: 323

CAS Number: 1336363

Name: POLYCHLORINATED BIPHENYL(S) (PCBS)

Main Chemical Data

Main Chemical Data - Main

EPA ID:

Prefix:

Synonyms:

AROCLOR; AROCLOR 1221; AROCLOR 1232; AROCLOR 1242; AROCLOR 1248; AROCLOR 1254; AROCLOR 1260; AROCLOR 1262; AROCLOR 1268; AROCLOR 1265; AROCLOR 4465 BIPHENYL, POLYCHLORO-; CHLOPHEN; CHLOREXTOL; CHLORINATED BIPHENYL; CHLORINATED DIPHENYL; CHLORINATED DIPHENYLENE; CHLORO BIPHENYL; CHLORO 1,1-BIPHENYL; CLOPHEN; DYKANOL; FENCOLOR; INERTEEN; KANECHLOR, KANECHLOR 300, KANECHLOR 400; KANECHLOR 500; MONTAR; NOFLAMOL; PCB; PCBs; PHENOCHLOR; PHENOCOLOR; POLYCHLORINATED BIPHENYL; POLYCHLOROBIPHENYL; PYRALENE; PYRANOL; SANTOTHERM; SANTOTHERM FR; SOVOL; THERMINOL FR-1; POLYCHLORINATED BIPHENYLS; PCB'S; 1,1'-BIPHENYL CHLORO DERIVS; 1,1'-BIPHENYL, CHLORO DERIVS.; AROCLOR - POLYCHLORINATED BIPHENYL; POLYCHLORINATED BIPHENYLS (PBE'S)

Main Chemical Data - Other

Other CAS Numbers CHEMTOX Record History

Storage:

At

Chemical Uses:

At

Created By: CONVERT On 05/30/1995

11:17:59

Not listed Modified By: On 03/09/1995

Main Chemical Data - List Information

List ID	Description	Type	Access	Effective Date
113	CAA 112 HAPs Name listed Chemicals	System	Public	11/15/1990
10	CAA of November 15, 1990. Hazardous Air Pollutants	System	Public	11/15/1990
11	CAA Section 109 Nat. Ambient Air Quality Stds.	System	Public	08/07/1977
20	Canadian Domestic Substances List	System	Public	01/26/1991
19	Canadian Ingredient Disclosure List (WHMIS)	System	Public	01/20/1988
3	Carcinogen List	System	Public	12/01/1995
65	CERCLA Release Liability Substances	System	Public	07/03/1985
64	CERCLA Reportable Quantity Substances	System	Public	07/03/1985
13	CWA Section 307 Priority Pollutants	System	Public	07/30/1979
12	CWA Section 311 Hazardous Chemicals List	System	Public	03/13/1978
38	DOT Hazardous Materials Table. 49CFR 172.101	System	Public	10/01/1995
71	DOT Hazardous Substances 40 CFR 172.101 Appendix	System	Public	10/01/1995
40	DOT Marine Pollutants List. 49CFR 172.101 App. B	System	Public	10/01/1993
32	Massachusetts Right to Know List of Chemicals	System	Public	07/01/1991
35	New Jersey DEP Community Right to Know Survey List	System	Public	01/01/1994
37	New Jersey Right to Know Substance List	System	Public	12/01/1989
3	NIOSH Carcinogenicity List	System	Public	06/01/1994
5	NTP List of Anticipated Human Carcinogens	System	Public	06/24/1994
4	NTP List of Human Carcinogens	System	Public	06/24/1994
31	Pennsylvania Hazardous Substance List	System	Public	05/01/1995
60	RCRA Haz. Waste Constituents App. VIII 40 CFR 261	System	Public	04/22/1988
18	Safe Drinking Water Act MCL and MCLG Substances	System	Public	01/22/1988
119	SARA 312 Hazard Category (All Categories)	System	Public	
115	SARA 312 Hazard Category Delayed (Chronic) Health	System	Public	
16	SARA Section 110 National Priorities List	System	Public	04/17/1987
95	SARA Section 313 Name listed Toxic Chemicals	System	Public	01/01/1987
17	SARA Section 313 Toxic Chemicals and Categories	System	Public	01/01/1987
41	Standard Transportation Commodity Code (STCC) List	System	Public	07/01/1994
96	Total Toxic Organics--Effluent Stds(40 CFR 433.11)	System	Public	11/07/1986
53	TSCA Chemical Inventory List 1985	System	Public	01/01/1977
24	TSCA Chemical Inventory List 1989	System	Public	01/01/1977
55	TSCA Chemical Inventory List 1990	System	Public	01/01/1977
61	TSCA Chemical Inventory List 1995	System	Public	01/01/1977
28	TSCA Section 12(b) Export Notification List	System	Public	01/01/1977
63	TSCA Section 6 Risk Management List of Chemicals	System	Public	01/01/1977
29	TSCA Test Submiss on (TSCATS) Database 1989	System	Public	01/01/1977
57	TSCA Test Submiss on (TSCATS) Database 1990	System	Public	01/01/1977

Carcinogenicity Data

Carcinogenicity Data

	Description	Date
Carcinogenic:	Yes	

ACGIH:

IARC:

Not listed.

Not listed.

Not listed.

OSHA:

Not listed.

Exposure Limit Data

Exposure Limits - TLV / REL / IDLH

ACGIH / TLV:

Not listed

NIOSH:

Not listed

IDLH: Not listed

Exposure Limits - PEL

Transitional: Not listed

Final Rule:

Not listed

Exposure Limits - WEEL / MAK

AHA WEEL: Not listed

German MAK:

Not listed

Personal Protection Data

Personal Protection - Clothing

CHRIS:

Not given

NIOSH:

Not given

Personal Protection - First Aid

CHRIS:

SKIN: wash with soap and water.

NIOSH:

Not given

ERG:

Move victim to fresh air.

Call emergency medical care.

Apply artificial respiration if victim is not breathing.

Administer oxygen if breathing is difficult.

Remove and isolate contaminated clothing and shoes.

In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Physical Properties Data

Physical Properties - Main

Formula:

Wisswesser Line Notation:

Chemical Class: HHC

Specific Gravity: 1.4400 at 30C

Density: mg/m3 at

Physical Description:

light yellow oily liquid or white solid powder with a weak odor

Physical Properties - Temperatures

Autoignition:

cal/g XE5 J/kg

Heat Of Combustion:

BTU/lb

Boiling Point:
cal/g XE5 J/kg
Melting Point:
Flash Point: Equal to

382.82

Heat Of Vaporization:

BTU/lb

Critical Temperature:
Flash Point Method:

* All temperatures are shown in Fahrenheit.

Physical Properties - Vapor

Vapor Density:

Vapor Pressure:

Evaporation Rate: Not given

Physical Properties - Odor

Description: Practically odorless - CHRIS

Lower Detection Limit: Data not available

100% Detection Limit:

Physical Properties - Other

Molecular Weight:

Minimum Detection Concentration:

Explosive Limits

Critical Pressure

kN/M2

atm

psia

Lower: na%

Upper: na%

Ionization Potential (eV):

Water Solubility:

Reactivity Data**Reactivity - Main**

Reactivity Summary:

Reactivity With Common Materials

No data

Reactivity With Water:

No data on water reactivity

Reactivity - Other

Incompatibilities:

Chlorine--NFPA 491M

Neutralizing Agents:

No data

Polymerization Possibilities:

No data

State Regulatory Data**State Regulatory - New Jersey**

EHS Registration: Substance Numbers

Comments:

Department Of Health 1554

Special Health Hazard Codes: CA,TE

Department Of Environmental Protection: 1554

Threshold Planning Quantity: 500

State Regulatory - Other States

Pennsylvania

Worker Right To Know: PA,

Washington

Hazardous Waste Codes:

Codes Comments:

Massachusetts

Listed: Yes

Hazard Indicator: MAE, MAC, MAT, MA

US / International Regulatory Data

US / International Regulatory - SARA

SARA 312

SARA 313

SARA EHS

Immediate (Acute) Health: No

Fire: No

Listed: Yes

Low Threshold Planning Quantity:

Delayed (Chronic) Health: Yes 2A,2

Reactive: No

Effective Date: 01/01/1987

High Threshold Planning Quantity:

Sudden Release Of Pressure: No

De Minimus Concentration: 0.1

Notes:

US / International Regulatory - Air / Water

Clean Air Act

Clean Water Act

Safe Drinking Water Act

Year Listed: 1990

CWA 307 Listed: Yes

Maximum Contaminant Level (MCL): 0.0005 mg/L

Listed By: Name

CWA 311 Listed: Yes

MCL Effective Date: 07/30/1992

CAA 112 Threshold Type:

MCL Goal (MCLG): 0 mg/L

CAA 112 Threshold Quantity:

lbs

MCLG Effective Date: 07/30/1992

US / International Regulatory - US Other

EPA ID: Office Of Pesticide Programs OSHA Highly Hazardous Chemicals

EPA Generic Class Codes: N/A

FIFRA Listed: Yes

Threshold Quantity:

Reportable Quantity: 1

lbs

0

kg

Effective Date:

Source: CERCLA

OPP Number: 17801

SARA 110 List Ranking: 7

US / International Regulatory - Canada

Domestic Substance Listed: Yes

WHMIS

Non-Domestic Substance Listed: No

Year Listed: 01/20/1988

Concentration: 0.1

French Spelling: POLYCHLOROBIPHENYLES (PCB)

Spill / Disposal Data

Spill / Disposal - Spill

EPA ID:

Reportable Quantity: 1

bs

ERG Spill Or Leak:

Do not touch or walk through spilled material.

Stop leak if you can do it without risk.

Prevent dust cloud.

Avoid inhalation of asbestos dust.

Small Dry Spills:

With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

Small Spills:

Take up with sand or other noncombustible absorbent material and place into containers for later disposal.

Large Spills:

Dike far ahead of liquid spill for later disposal.

Cover powder spill with plastic sheet or tarp to minimize spreading.

Prevent entry into waterways, sewers, basements or confined areas.

Spill / Disposal - Disposal

Lab Quantity Spill:

Sources:

Spill / Disposal - Fire

Toxic Fire Gases:

None reported other than possible unburned vapors

Extinguishing Media:

Water, foam, dry chemical, or carbon dioxide NOTE: Not pertinent

Sources: CHRIS91

Spill / Disposal - NFPA

Health: 2

Flammability: 1

Reactivity: 0

Special:

Toxicological Data

Toxicological - Health Effects

Short Term:
Unknown
Long Term:
Unknown

Toxicological - Toxic Effects

RTECS

Irritation:
Mutagenic:
Reproductive:
ori-rat TDLo:400 mg/kg (6-15D preg); (EFFECTS ON NEWBORN: Behavioral); FAATDF 11,440,88

ori-rat TDLo:420 mg/kg (21D post); (EFFECTS ON NEWBORN: Behavioral); FAATDF 11,440,88

ori-rat TDLo:500 mg/kg (13D preg); (EFFECTS ON NEWBORN: Biochemical and metabolic); GISAAA 56(9),44,91

ipr-rat TDLo:700 mg/kg (14D pre); (EFFECTS ON NEWBORN: Behavioral); FAATDF 11,440,88

ori-mam TDLo:325 mg/kg (30D pre/1-36D preg); (EFFECTS ON NEWBORN: Stillbirth); (EFFECTS ON NEWBORN: Live birth index); (EFFECTS ON NEWBORN: V ability index (e.g., # alive at day 4 per # born alive)); AMBOCX 6,239,77

ori-mam TDLo:325 mg/kg (30D pre/1-36D preg); (EFFECTS ON NEWBORN: Growth statistics (e.g. reduced weight gain)); AMBOCX 6,239,77

Tumorigenic:
ori-rat TDLo:16800 mg/kg/2Y-C. TUMORIGENIC(Equivocal tumorigenic agent by RTECS criteria); LIVER(Tumors); TOERD9 1,159,78

ori-mus TDLo:250 mg/kg/25W-I; TUMORIGENIC(Carcinogenic by RTECS criteria); LUNGS, THORAX, OR RESPIRATION(Tumors); LIVER(Tumors); FCTOD7 21,688,83

ori-rat TDLo:1250 mg/kg/25W-I; TUMORIGENIC(Carcinogenic by RTECS criteria); LIVER(Tumors); FCTOD7 21,688,83

Other Sources

Mutagenic:
Reproductive:

Toxicological - Symptoms

Symptoms:

Acne from skin contact.-CHRIS

Target Organs: SKIN, LIVER

Medical Conditions Aggravated: Unknown

Toxicological - Toxic Values

Toxic Values:

ori-mus LD50:1900 mg/kg; LIVER(Other changes); NUTRITIONAL AND GROSS METABOLIC(Weight loss or decreased weight gain); BIOCHEMICAL(METABOLISM (INTERMEDIARY) Lipids including transport); FKIZA4 60,544,69

Transportation Data

Transportation - USPS / ERG

	USPS	ERG Small Spill Isolation	ERG Large Spill Isolation
ERG Number:			
171			
Hazard Class:		Isolate:	feet
feet			Isolate:
Mailability:		Protect (day):	miles
miles			Protect (day):
Maximum Per Parcel:		Protect (night):	miles
		miles	Protect (night):

Potential Hazards**Fire Or Explosion:**

Some may burn but none ignite readily.

Some may polymerize (P) explosively when heated or involved in a fire.

Containers may explode when heated.

Some may be transported hot.

Health Hazards:

Inhalation of material may be harmful.

Contact may cause burns to skin and eyes.

Inhalation of Asbestos dust may have a damaging effect on the lungs.

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control may cause pollution.

Public Safety**Public Safety:**

CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.

Isolate spill or leak area immediately for at least 10 to 25 meters (30 to 80 feet) in all directions.

Keep unauthorized personnel away.

Stay upwind.

Wear positive pressure self-contained breathing apparatus (SCBA).

Structural firefighters' protective clothing will only provide limited protection.

EVACUATION**Fire:**

If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (½ mile) in all directions; also, consider initial evacuation for 800 meters (½ mile) in all directions.

Emergency Response**Fire:****Small Fires:**

Dry chemical CO2, water spray or regular foam.

Large Fires:

Water spray, fog or regular foam.

Move containers from fire area if you can do it without risk.

Do not scatter spilled material with high pressure water streams.

Dike fire-control water for later disposal.

Fire involving Tanks:

Cool containers with flooding quantities of water until well after fire is out.

Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.

ALWAYS stay away from the ends of tanks.

Spill Or Leak:

Do not touch or walk through spilled material.

Stop leak if you can do it without risk.

Prevent dust cloud.

Avoid inhalation of asbestos dust.

Small Dry Spills:

With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

Small Spills:

Take up with sand or other noncombustible absorbent material and place into containers for later disposal.

Large Spills:

Dike far ahead of liquid spill for later disposal.

Cover powder spill with plastic sheet or tarp to minimize spreading.
Prevent entry into waterways, sewers, basements or confined areas.

First Aid:

Move victim to fresh air.

Call emergency medical care.

Apply artificial respiration if victim is not breathing.

Administer oxygen if breathing is difficult.

Remove and isolate contaminated clothing and shoes.

In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Transportation - Other

Poison Description: Marine Pollutant: SN

STCC:

Stability:

Special Handling:

Transportation - CFR 172.101

DOT ID: UN2315 Hazard Class: 9

Packing Group: II

Hazard Zone:

Symbols: AW

Ship Name: Polychlorinated biphenyls

Labels: CLASS 9

Packaging Authorizations	Quantity Limitations	Vessel	Other
Exceptions: A	155 Special Provisions:	Passenger Air/Rail: 9, 81	100 L Storage:
Non-Bulk: Other Provisions:	202 34	Cargo Air:	220 L
Bulk: 241			

Disclaimer: The data shown above on this chemical represents a best effort on the part of the compilers of the CHEMTOX Database to obtain useful, accurate, and factual data. The use of these data shall be in accordance with the guidelines and limitations of the user's license agreement. The COMPILERS of the CHEMTOX Database shall not be held liable for inaccuracies or omissions within this database, or in any of its printed or displayed output forms.

Appendix F-2

Chemical Hazard Information -

Polynuclear Aromatic Hydrocarbons (PNAs)

Main Chemical Data

Chemical Identification

CHEMTOX ID: 11202

CAS Number:

Name: POLYNUCLEAR AROMATIC HYDROCARBONS

Main Chemical Data - Main

EPA ID:

Prefix:

Synonyms: POLYNUCLEAR AROMATIC HYDROCARBONS (INCLUDING BENZANTHRACENES, BENZOPYRENES, BENZOFLUROANTHENE, CHRYSENES, DIBENZANTHRACENES, AND INDENOPYRENES)

Main Chemical Data - Other

Other CAS Numbers:

Storage:

Chemical Uses:

CHEMTOX Record History

Created By: On At

Modified By: On At

Main Chemical Data - List Information

List ID	Description	Type	Access	Effective Date
64	CERCLA Reportable Quantity Substances	System	Public	07/03/198
13	CWA Section 307 Priority Pollutants	System	Public	07/30/197
37	New Jersey Right to Know Substance List	System	Public	12/01/198
31	Pennsylvania Hazardous Substance List	System	Public	01/01/199

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Physical Properties Data

Chemical Identification

CHEMTOX ID: 11202

CAS Number:

Name: POLYNUCLEAR AROMATIC HYDROCARBONS

Physical Properties - Main

Formula:

isswesser Line Notation:

Chemical Class: PAH

Specific Gravity:

at

Density:

mg/m3 at

Physical Description: AROMATIC HYDROCARBONS CONTAINING THREE OF MORE CLOSED RINGS, USUALLY OF THE BENZENOID TYPE. DERIVED CHIEFLY FROM PETROLEUM AND COAL TAR; MOST SUBSTANCES HAVE A CHARACTERISTIC ODOR THAT IS STRONG AND NOT UNPLEASANT.

Physical Properties - Temperatures

Autoignition:

Heat Of Combustion:

BTU/lb

cal/g

XE5 J/kg

Boiling Point:

Heat Of Vaporization:

BTU/lb

cal/g

XE5 J/kg

Melting Point:

Critical Temperature:

Flash Point:

Flash Point Method:

* All temperatures are shown in Fahrenheit.

Physical Properties - Vapor

Vapor Density:

apor Pressure:

vaporation Rate: Not given

Physical Properties - Odor

Description: STRONG AND NOT UNPLEASANT

ower Detection Limit:

00% Detection Limit:

Physical Properties - Other

Molecular Weight:

Minimum Detection Concentration:

Explosive Limits

Critical Pressure:

kN/M2

atm

psia

Lower:

Upper:

nization Potential (eV):

Water Solubility:

Disclaimer: The data shown above on this chemical represents a best effort on the part of the compilers of the CHEMTOX Database to obtain useful, accurate, and factual data. The use of these data shall be in accordance with the guidelines and limitations of the user's license agreement. The COMPILERS of the CHEMTOX Database shall not be held liable for inaccuracies or omissions within this database, or in any of its printed or displayed output forms.

Reactivity Data

Chemical Identification

CHEMTOX ID: 11202

CAS Number:

Name: POLYNUCLEAR AROMATIC HYDROCARBONS

Reactivity - Main

Reactivity Summary:

Reactivity With Common Materials: No data

Reactivity With Water: No data on water reactivity

Reactivity - Other

Incompatibilities:

Neutralizing Agents: No data

Polymerization Possibilities: No data

Disclaimer: The data shown above on this chemical represents a best effort on the part of the compilers of the CHEMTOX Database to obtain useful, accurate, and factual data. The use of these data shall be in accordance with the guidelines and limitations of the user's license agreement. The COMPILERS of the CHEMTOX Database shall not be held liable for inaccuracies or omissions within this database, or in any of its printed or displayed output forms.

Spill / Disposal Data

Chemical Identification

CHEMTOX ID: 11202

CAS Number:

Name: POLYNUCLEAR AROMATIC HYDROCARBONS

Spill / Disposal - Spill

EPA ID:

Reportable Quantity: lbs

ERG Spill Or Leak:

Spill / Disposal - Disposal

Lab Quantity Spill:

Sources:

Spill / Disposal - Fire

Toxic Fire Gases:

Extinguishing Media:

Sources:

Spill / Disposal - NFPA

Health:

Flammability:

Reactivity:

Special:

Disclaimer: The data shown above on this chemical represents a best effort on the part of the compilers of the CHEMTOX Database to obtain useful, accurate, and factual data. The use of these data shall be in accordance with the guidelines and limitations of the user's license agreement. The COMPILERS of the CHEMTOX Database shall not be held liable for inaccuracies or omissions within this database, or in any of its printed or displayed output forms.

Toxicological Data

Chemical Identification

CHEMTOX ID: 11202

CAS Number:

Name: POLYNUCLEAR AROMATIC HYDROCARBONS

Toxicological - Health Effects

Short Term: Unknown

Long Term: Unknown

Toxicological - Toxic Effects:

RTECS

Irritation:

Mutagenic:

Reproductive:

Tumorigenic:

Other Sources

Mutagenic:

Reproductive:

Toxicological - Symptoms

Symptoms:

Target Organs:

Medical Conditions Aggravated:

Toxicological - Toxic Values

Toxic Values:

Disclaimer: The data shown above on this chemical represents a best effort on the part of the compilers of the CHEMTOX Database to obtain useful, accurate, and factual data. The use of these data shall be in accordance with the guidelines and limitations of the user's license agreement. The COMPILERS of the CHEMTOX Database shall not be held liable for inaccuracies or omissions within this database, or in any of its printed or displayed output forms.

Exposure Limits Data

Chemical Identification

CHEMTOX ID: 11202

CAS Number:

Name: POLYNUCLEAR AROMATIC HYDROCARBONS

Exposure Limits - TLV / REL / IDLH

ACGIH / TLV: Not listed

NIOSH: Not listed

IDLH: Not listed

Exposure Limits - PEL

Transitional: Not listed

Final Rule: Not listed

Exposure Limits - WEEL / MAK

AHA WEEL: Not listed

German MAK: Not listed

Disclaimer: The data shown above on this chemical represents a best effort on the part of the compilers of the CHEMTOX Database to obtain useful, accurate, and factual data. The use of these data shall be in accordance with the guidelines and limitations of the user's license agreement. The COMPILERS of the CHEMTOX Database shall not be held liable for inaccuracies or omissions within this database, or in any of its printed or displayed output forms.

Personal Protection Data

Chemical Identification

CHEMTOX ID: 11202

CAS Number:

Name: POLYNUCLEAR AROMATIC HYDROCARBONS

Personal Protection - Clothing

CHRIS: Not given

NIOSH: Not given

Personal Protection - First Aid

CHRIS: Not given

NIOSH: Not given

ERG:

Disclaimer: The data shown above on this chemical represents a best effort on the part of the compilers of the CHEMTOX Database to obtain useful, accurate and factual data. The use of these data shall be in accordance with the guidelines and limitations of the user's license agreement. The COMPILERS of the CHEMTOX Database shall not be held liable for inaccuracies or omissions within this database, or in any of its printed or displayed output forms.

Carcinogenicity Data

Chemical Identification

CHEMTOX ID: 11202

CAS Number:

Name: POLYNUCLEAR AROMATIC HYDROCARBONS

Carcinogenicity Data

Carcinogenic: No

ACGIH: Not listed.

IARC: Not listed.

MAK: Not listed.

NIOSH: Not listed.

NTP: Not listed.

OSHA: Not listed.

Description

Date

Disclaimer: The data shown above on this chemical represents a best effort on the part of the compilers of the CHEMTOX Database to obtain useful, accurate, and factual data. The use of these data shall be in accordance with the guidelines and limitations of the user's license agreement. The COMPILERS of the CHEMTOX Database shall not be held liable for inaccuracies or omissions within this database, or in any of its printed or displayed output forms.

Transportation Data

Chemical Identification

CHEMTOX ID: 11232

CAS Number:

Name: POLYNUCLEAR AROMATIC HYDROCARBONS

Transportation - USPS / ERG

USPS

Hazard Class:

Mailability:

Maximum Per Parcel:

ERG Small Spill Isolation

Isolate: feet

Protect (day): miles

Protect (night): miles

ERG Large Spill Isolation

Isolate: feet

Protect (day): miles

Protect (night): miles

ERG Number:

Potential Hazards

Fire Or Explosion:

Health Hazards:

Public Safety

Public Safety:

Emergency Response

Fire:

Spill Or Leak:

First Aid:

Transportation - Other

Poison Description:

Marine Pollutant:

STCC:

Stability:

Special Handling:

Transportation - CFR 172.101

DOT ID:

Hazard Class:

Packaging Group:

Hazard Zone:

Symbols:

Ship Name:

Labels:

Packaging Authorizations

Exceptions:

Non-Bulk:

Bulk:

Quantity Limitations

Passenger Air/Rail:

Cargo Air:

Vessel

Storage:

Other Provisions:

Other

Special Provisions:

Disclaimer: The data shown above on this chemical represents a best effort on the part of the compilers of the CHEMTOX Database to obtain useful, accurate, and factual data. The use of these data shall be in accordance with the guidelines and limitations of the user's license agreement. The COMPILERS of the CHEMTOX Database shall not be held liable for inaccuracies or omissions within this database, or in any of its printed or displayed output forms.

Appendix F-3

Chemical Hazard Information -

Hexane

(not currently used; section reserved)

Appendix F-4

Chemical Hazard Information -

Chlorine and Chlorine Meter Powder Pillows

MATERIAL SAFETY DATA SHEET

Page: 1 of 8
Date Issued: 05/08/1997
MSDS Ref. No: BBIO21711
Date Revised: 10/28/1997
Revision No: 2

BioGuard 3" Tablets

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: BioGuard 3" Tablets
GENERAL USE: Swimming pool sanitizer.
CHEMICAL FAMILY: Chlorinated Isocyanurates

MANUFACTURER

Bio-Lab, Inc.
BioGuard
PO. Box 1489
Decatur, GA 30031
Customer SERVICE: (800) 859-7946

24 HR. EMERGENCY TELEPHONE NUMBERS

CHEMTREC (Transportation) (800) 424-9300
Rocky Mountain (Medical) (303) 623-5716

COMMENTS:

EPA Registration Number: 5185-144

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt. %	CAS Registry #	EINECS #
Trichloro-s-triazinetriene	99	87-90-1	201-782-8

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE:

White tablets with halogen odor.

IMMEDIATE CONCERNS:

DANGER: Corrosive: Causes irreversible eye damage and skin burns. May be fatal if absorbed through skin. May be fatal if inhaled. Do not breathe dust or spray mists. Irritating to nose and throat. Harmful if swallowed. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield, protective clothing and rubber gloves when handling this product. Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco. Remove contaminated clothing and wash before reuse.

POTENTIAL HEALTH EFFECTS

EYES:

DANGER: Corrosive: Causes irreversible eye damage. Do not get in eyes.

SKIN:

DANGER: Corrosive: Causes skin burns. Do not get on skin.

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BioGuard 3" Tablets

SKIN ABSORPTION:

May be fatal if absorbed through skin.

INGESTION:

Harmful if swallowed.

INHALATION:

May be fatal if inhaled. Irritating to nose and throat. Avoid breathing dust or vapors.

ROUTES OF ENTRY:

Skin Contact, Inhalation, Ingestion, Eye Contact.

COMMENTS HEALTH:

There are no known chronic hazards.

4. FIRST AID MEASURES

EYES:

If in eyes: Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. Get medical attention.

SKIN:

If on skin: Wash with plenty of soap and water. Get medical attention if irritation persists.

INGESTION:

If swallowed: Drink promptly large quantities of water. Do not induce vomiting. Avoid alcohol. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

INHALATION:

If inhaled: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth to mouth. Get medical attention.

NOTES TO PHYSICIAN:

Probable mucosal damage may contraindicate the use of gastric lavage

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: None

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BioGuard 3" Tablets

GENERAL HAZARD

This product did not ignite when exposed to pallet scale burn tests. When in direct contact with combustible material, this product may slightly enhance the burning rate of the combustible material. Under extreme heat (>400F), this product will evolve noxious chlorine containing gases necessitating the need for self contained breathing apparatus (SCBA) when applying extinguishing media (WATER).

EXTINGUISHING MEDIA:

In case of fire or smoke, call the fire department. Do not attempt to extinguish the fire without a self-contained breathing apparatus (SCBA). Do not let the fire burn. Flood with copious amounts of water. DO NOT use ABC or other dry chemical extinguishers since there is the potential for a violent reaction.

EXPLOSION HAZARDS:

Nitrogen trichloride can be generated slowly by the reaction of small quantities of water with a high concentration of this product. Nitrogen trichloride can present an explosion hazard.

Immediately after a fire has been extinguished, check for wet or damp material. Any spilled material from burned or broken containers should be assumed contaminated. Neutralize to a non-oxidizing material for safe disposal. Do not attempt to re-close broken containers, even for movement to the disposal area. They should be left open to disperse any nitrogen trichloride that may form.

Material which appears undamaged except for being damp on the outside, should be opened and inspected immediately. If the plastic liner (where applicable) of the container is damaged or the material is damp, the material should be chemically treated if allowable, to a non-oxidizing material for safe disposal.

Bulging containers require extreme care. Contact the fire department.

FIRE FIGHTING PROCEDURES:

Firefighters should wear full protective clothing and self-contained breathing apparatus (SCBA). Using a 10% solution of sodium carbonate, thoroughly decontaminate fire fighting equipment including all fire fighting wearing apparel after the incident.

6. ACCIDENTAL RELEASE MEASURES

GENERAL PROCEDURES:

Using appropriate protective clothing and safety equipment, contain spilled material. Do not add water to spilled material. Using clean dedicated equipment, sweep and scoop all spilled material, contaminated soil, and other contaminated material and place into clean dry containers for disposal. Do not use floor sweeping compounds to clean up spills. Do not close containers containing wet or damp material. They should be left open to disperse any hazardous gases that may form. Do not transport wet or damp material. Keep product out of sewers, watersheds and water systems. Do not contaminate water, food, or feed by storage or disposal or cleaning of equipment. Dispose of according to local, state and federal regulations.

MATERIAL SAFETY DATA SHEET

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BioGuard 3" Tablets

7. HANDLING AND STORAGE

HANDLING:

STRONG OXIDIZING AGENT: Do not mix with other chemicals. Mix only with water. Never add water to product. Always add product to large quantities of water. Use clean dry utensils. Do not add this product to any dispensing device containing remnants of any other product. Such use may cause a violent reaction leading to fire or explosion. Contamination with moisture, organic matter or other chemicals will start a chemical reaction and generate heat, hazardous gas, possible fire and explosion. In case of contamination or decomposition, do not reseal container. If possible, isolate container in open air or well ventilated area. Flood area with large volumes of water.

STORAGE:

Keep this product in original closed container when not in use. Store in a cool, dry, well ventilated area away from heat or open flame. Do not contaminate water, food or feed by storage or disposal or cleaning of equipment. Do not store above 125 F (52 C).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200)

		EXPOSURE LIMITS					
		OSHA PEL		ACGIH TLV		SUPPLIER OEL	
		ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Trichloro-s-triazinetriene	TWA	N/E ⁽¹⁾		N/E			

OSHA TABLE COMMENTS:

1. N/E = Not Established

ENGINEERING CONTROLS:

General room ventilation plus local exhaust should be used to minimize exposure to dust/vapors.

PERSONAL PROTECTIVE EQUIPMENT:

EYES AND FACE:

Wear goggles or safety glasses with side shields when handling this product.

SKIN:

Wear rubber gloves when handling this product. Avoid contact with skin.

RESPIRATORY:

A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

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BioGuard 3" Tablets

WORK HYGIENIC PRACTICES:

Remove and wash contaminated clothing before reuse.

OTHER USE PRECAUTIONS:

Facilities storing or utilizing this material should be equipped with an eyewash and safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Solid
ODOR: Chlorine
APPEARANCE: Tablet
COLOR: White
pH: 3 to 3.5 (1% solution @ 25°C)
THERMAL DECOMPOSITION: 225°C to 230°C
SOLUBILITY IN WATER: 1.2g/100g Water
DENSITY: 55 - 60 lb / cu ft

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:

-high temperature -Poor ventilation -Contamination -Moisture/high humidity

STABILITY:

This product is stable under normal conditions.

POLYMERIZATION:

-Hazardous polymerization will not occur under normal conditions.

HAZARDOUS DECOMPOSITION PRODUCTS:

Chlorine containing gases can be produced.

INCOMPATIBLE MATERIALS:

This material is a strong oxidizing agent. Avoid contact with water on concentrated material in the container. Also avoid contact with easily oxidizable organic material; ammonia, urea, or similar nitrogen containing compounds; inorganic reducing compounds; floor sweeping compounds; calcium hypochlorite; alkalis; other swimming pool/spa chemicals in their concentrated forms.

11. TOXICOLOGICAL INFORMATION

ACUTE

ORAL LD₅₀: 1500 mg/kg (rat).

INHALATION LC₅₀: 0.5 mg/L (rat).

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EYE EFFECTS:

This product is corrosive to eyes.

SKIN EFFECTS:

This product is corrosive to skin.

CARCINOGENICITY:

This product is not listed as a carcinogen by IARC.
This product is not listed as a carcinogen by NTP.
This product is not listed as a carcinogen by OSHA.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds or estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD:

Pesticide wastes are toxic. Improper disposal of excess pesticide or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance. Do not contaminate water, food, or feed by storage or disposal or cleaning of equipment. Do not put product, spilled product, or filled or partially filled containers into the trash or waste compactor. Contact with incompatible materials could cause a reaction or fire.

EMPTY CONTAINER:

Do not reuse container. Rinse thoroughly before discarding in trash.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

PROPER SHIPPING NAME: Trichloroisocyanuric Acid, Dry
PRIMARY HAZARD CLASS/DIVISION: 5.1
UN/NA NUMBER: 2468
PACKING GROUP: II

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BioGuard 3" Tablets

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

313 REPORTABLE INGREDIENTS: This product or its components are not listed.

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

CERCLA REGULATORY: This product or its components are not listed.

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA REGULATORY: This product or its components are not subject to export notification.

TSCA STATUS: This product or its components are listed on the TSCA Inventory

CSHA HAZARD COMM. RULE:

Product is hazardous by definition of the Hazardous Communication Standard

CLEAN WATER ACT:

Not Listed.

F FRA (FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT):

This product is a registered pesticide.

SDWA (SAFE DRINKING WATER ACT):

Not listed.

CLEAN AIR ACT

40 CFR PART 68—RISK MANAGEMENT FOR CHEMICAL ACCIDENT RELEASE PREVENTION: Not listed.

16. OTHER INFORMATION

REVISION SUMMARY

Revision #: 2

This MSDS replaces the June 25, 1997 MSDS. Any changes in information are as follows:

In Section 5

(Group Field) for Flash Point

NFPA CODES

HEALTH: 3 FIRE: 1 REACTIVITY: 1

NFPA STORAGE CLASSIFICATION:

NFPA Oxidizer Class 1

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BioGuard 3" Tablets

HMIS CODES

HEALTH: 3 FIRE: 1 REACTIVITY: 1 PROTECTION: B

MANUFACTURER DISCLAIMER:

IMPORTANT: This information is given without a warranty or guarantee. No suggestions for use are intended or shall be construed as a recommendation to infringe any existing patents or violate any Federal, State or local laws. Safe handling and use is the responsibility of the customer. Read the label before using this product. This information is true and accurate to the best of our knowledge.

Effective: 3/30/95

Rev. A - Page 1 of 2

Cat. No. HI93711-01, HI93711-03

For assistance please contact: (800) 426-6287

SECTION I - PRODUCT IDENTIFICATION

Product Name: DPD Total Chlorine Reagent

Chemical Name: Not applicable

Formula: Not applicable

CAS. Number: NA

Chemical Family: Not applicable

SECTION II - INGREDIENTS

Sodium Hydrogen Tartrate

PCT: <50

CAS No.: 526-94-3

SARA: Not listed

TLV: Not established

PEL: Not established

Hazard: Toxicity unknown

Sodium Phosphate, Dibasic, Anhydrous

PCT: <30

CAS No.: 7558-79-4

SARA: Not listed

TLV: Not established

PEL: Not established

Hazard: May cause eye and respiratory tract irritation

Potassium Iodide

PCT: <30

CAS No.: 7681-11-0

SARA: Not listed

TLV: Not established

PEL: Not applicable

Hazard: May cause irritation

Salt of N,N-Diethyl-p-Phenylenediamine

PCT: <5

CAS No.: 6283-63-2

SARA: Not listed

TLV: Not applicable

PEL: Not applicable

Hazard: Moderately toxic; may cause skin sensitization

SECTION III - PHYSICAL DATA

State: solid

Solubility: (water) soluble (acid) ND

Appearance: white powder or pale pink powder

Odor: None

Boiling Point: NA

Vapor Pressure (mm Hg): NA

Melting Point: ND

Vapor Density (air =1): NA

Specific Gravity: ND

Evaporation Rate: NA

Storage Precautions: cool, dry, dark place

* NA/ND - Defined as not applicable or not defined.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: NA

NFFA Codes: Health: 2

Flammability: 0

Reactivity: 0

Toxic Gases Produced: phosphorous oxides, iodine and iodine compounds

Fire Extinguishing Media: water, dry chemical, or carbon dioxide

SECTION V - HEALTH HAZARD DATA

This Product May Be: irritating to eyes and respiratory tract and may cause allergic skin reaction

Acute Toxicity: slightly toxic

Routes of Exposure: ingestion, inhalation

Target organs: ND

Chronic Toxicity: ND

Routes of Exposure: ingestion, inhalation

Target Organs: ND
Cancer Information: ND
Routes of Exposure: ND
Target Organs: ND

Overexposure: may cause irritation, skin sensitization. May cause chronic "iodism": skin rash, conjunctivitis, runny nose, sneezing, bronchitis, headache, fever, irritation of mucous membranes.
Medical Conditions Aggravated By Overexposure: allergy or sensitivity to salts of N,N-Diethyl-p-Phenylenediamine.

SECTION VI - PRECAUTIONARY MEASURES

Avoid contact with eyes.
Avoid prolonged or repeated contact with skin.
Do not breath dust.
Wash thoroughly after handling.
Protective Equipment: adequate ventilation, lab grade goggles, disposable latex gloves

SECTION VII - FIRST AID

Eye and Skin Contact: Immediately flush eyes with cold water for 15 minutes. Call physician.
Remove contaminated clothing. Wash skin with soap and plenty of cold water.
Ingestion: Give large quantities of cold water. Call physician immediately.
Inhalation: Remove to fresh air.

SECTION VIII - REACTIVITY DATA

Stability: stable
Conditions to Avoid: extreme temperatures, excess moisture, exposure to light
Decomposition of Products: May emit toxic fumes of phosphorous oxides, iodine or iodine compounds in fire

SECTION IX - SPILL AND DISPOSAL PROCEDURES

In Case of Spill or Release: .
Sweep up powder. Avoid breathing material. Dissolve in water. Flush down the drain with excess water.
Disposal Procedure:
Dispose of in accordance with all federal, state, and local regulations.

SECTION X - TRANSPORTATION DATA

Proper Shipping Name: Not currently regulated
Hazard Class: NA

SECTION XI - REFERENCES

- 1) TLV's Threshold Limit Values and Biological Exposure Indices for 1988-1989. American Conference of Governmental Industrial Hygienists, 1988.
- 2) Air Contaminants, Federal Register, Vol. 54, No. 12, Thursday, January 19, 1989. pp.2332-2983.
- 3) In-house information
- 4) Technical judgment
- 5) Outside testing

Special Note: Oral rat LD50 = 5850 mg/kg

MATERIAL SAFETY DATA SHEETS

HANNA INSTRUMENTS, INC.

P.O. BOX 849

WOONSOCKET, RI 02895

Effective: 3/30/95

Rev. A - Page 1 of 2

Cat. No. HI93701-01, HI93701-03

For assistance please contact: (800) 426-6287

SECTION I - PRODUCT IDENTIFICATION

Product Name: DPD Free Chlorine Reagent

Chemical Name: Not applicable

Formula: Not applicable

CAS. Number: NA

Chemical Family: Not applicable

SECTION II - INGREDIENTS

Sodium Hydrogen Tartrate

PCT: <60

CAS No.: 526-94-3

SARA: Not listed

TLV: Not established

PEL: Not established

Hazard: Toxicity unknown

Sodium Phosphate, Dibasic, Anhydrous

PCT: <40

CAS No.: 7558-79-4

SARA: Not listed

TLV: Not established

PEL: Not established

Hazard: may cause eye and respiratory tract irritation

Salt of N,N-Diethyl-p-Phenylenediamine

PCT: <5

CAS No.: 6283-63-2

SARA: Not listed

TLV: Not established

PEL: Not applicable

Hazard: Not applicable

SECTION III - PHYSICAL DATA

State: solid

Solubility: (water) soluble (acid) ND

Appearance: white to pale pink powder

Odor: None

Boiling Point: NA

Vapor Pressure (mm Hg): NA

Melting Point: ND

Vapor Density (air =1): NA

Specific Gravity: ND

Evaporation Rate: NA

Storage Precautions: cool, dry, dark place

* NA/ND - Defined as not applicable or not defined.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: NA

NFPA Codes: Health: 1

Flammability: 1

Reactivity: 0

Toxic Gases Produced: phosphorous oxides

Fire Extinguishing Media: water, dry chemical, alcohol foam or carbon dioxide

SECTION V - HEALTH HAZARD DATA

This Product May Be: irritating to eyes and respiratory tract, and may cause allergic skin reaction

Acute Toxicity: slightly toxic

Routes of Exposure: ingestion, inhalation

Target organs: ND

Chronic Toxicity: ND

Routes of Exposure: ingestion, inhalation

Target Organs: ND

Cancer Information: ND

Routes of Exposure: ND

Target Organs: ND

Overexposure: contact may cause skin irritation, skin sensitization

Medical Conditions Aggravated By Overexposure: Allergy or sensitivity to salts of N, N-Diethyl-p-Phenylenediamine

SECTION VI - PRECAUTIONARY MEASURES

Avoid contact with eyes.

Avoid prolonged or repeated contact with skin.

Do not breath dust.

Wash thoroughly after handling.

Protective Equipment: adequate ventilation, lab grade goggles, disposable latex gloves

SECTION VII - FIRST AID

Eye and Skin Contact: Immediately flush eyes with cold water for 15 minutes. Call physician.

Remove contaminated clothing. Wash skin with soap and plenty of cold water.

Ingestion: Give large quantities of cold water. Call physician immediately.

Inhalation: Remove to fresh air.

SECTION VIII - REACTIVITY DATA

Stability: stable

Conditions to Avoid: Extreme temperatures, excess moisture, exposure to light

Decomposition of Products: May emit toxic fumes of phosphorous oxides in fire

SECTION IX - SPILL AND DISPOSAL PROCEDURES

In Case of Spill or Release:

Sweep up powder. Avoid breathing material. Dissolve in water. Flush down the drain with excess water.

Disposal Procedure:

Dispose of in accordance with all federal, state, and local regulations.

SECTION X - TRANSPORTATION DATA

Proper Shipping Name: Not currently regulated

Hazard Class: NA

SECTION XI - REFERENCES

- 1) TLV's Threshold Limit Values and Biological Exposure Indices for 1988-1989. American Conference of Governmental Industrial Hygienists, 1988.
- 2) Air Contaminants, Federal Register, Vol. 54, No. 12, Thursday, January 19, 1989. pp.2332-2983.
- 3) In-house information
- 4) Technical judgment

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

Appendix F-5

Chemical Hazard Information -

Gasoline

MATERIAL SAFETY DATA BULLETIN

2502 - 000 - 0321

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: AUTOMOTIVE GASOLINE, UNLEADED (MRDUS)
SUPPLIER: MOBIL OIL CORP.
AMERICAS MARKETING AND REFINING ALL GRADES
3225 GALLOWES RD.
FAIRFAX, VA 22037

APPROVAL DATE: 07/24/97

DEC 9 1997

24 - HOUR EMERGENCY (CALL COLLECT): 609-737-4411
PRODUCT AND MSDS INFORMATION: 800-662-4525 703-849-5700
CHEMTREC: 800-424-9300 202-483-7616

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNONYMS: HYDROCARBONS AND ADDITIVES

INGREDIENTS CONSIDERED HAZARDOUS TO HEALTH:

SUBSTANCE NAME	WT%
GASOLINE (8006-61-9)	100

COMPONENT(S) OF PRODUCT INGREDIENTS INCLUDE:

METHYL T-BUTYL ETHER (1634-04-4)	15
ETHANOL (64-17-5)	11
XYLENE (1330-20-7)	10
ISOPENTANE (78-78-4)	9
TOLUENE (108-88-3)	5
PSEUDOCUMENE (95-63-6)	5
BUTANE (106-97-8)	4
2-METHYLPENTANE (107-83-5)	4
PENTANE (109-66-0)	4
TRIMETHYL BENZENE (25551-13-7)	3
3-METHYLPENTANE (96-14-0)	2
BENZENE (71-43-2)	2

(SECTION CONTINUED NEXT PAGE)

2,3-DIMETHYLBUTANE (79-29-8)	2
N-HEXANE (110-54-3)	2
ETHYL BENZENE (100-41-4)	2
3- METHYLHEXANE (589-34-4)	2
2- METHYLHEXANE (591-76-4)	1
METHYLCYCLOHEXANE (108-87-2)	1

NOTE: THIS MSDS ALSO COVERS REFORMULATED AND CARB PHASE 2 GASOLINE. THE CONCENTRATION OF THE COMPONENTS SHOWN ABOVE MAY VARY SUBSTANTIALLY. BECAUSE OF VOLATILITY CONSIDERATIONS, GASOLINE VAPOR MAY HAVE CONCENTRATIONS OF COMPONENTS VERY DIFFERENT FROM THOSE OF LIQUID GASOLINE. THE MAJOR COMPONENTS OF GASOLINE VAPOR ARE: BUTANE, ISOBUTANE, PENTANE AND ISOPENTANE. FEDERAL RFG (REFORMULATED) AND CARB PHASE 2 GASOLINE WILL CONTAIN OXYGENATES SUCH AS MTBE OR ETHANOL AT A CONCENTRATION TO PROVIDE A MINIMUM OXYGEN CONTENT OF 1.5 WT%. THE REPORTABLE COMPONENT PERCENTAGES, SHOWN IN THE REGULATORY INFORMATION SECTION, ARE BASED ON API'S EVALUATION OF A TYPICAL GASOLINE MIXTURE.

SEE SECTION 15 FOR EUROPEAN LABEL INFORMATION.

SEE SECTION 8 FOR EXPOSURE LIMITS (IF APPLICABLE).

3. HAZARDS IDENTIFICATION

US OSHA HAZARD COMMUNICATION STANDARD: PRODUCT ASSESSED IN ACCORDANCE WITH OSHA 29 CFR 1910.1200 AND DETERMINED TO BE HAZARDOUS.

EFFECTS OF OVEREXPOSURE: EYE IRRITATION, RESPIRATORY IRRITATION, DIZZINESS, NAUSEA, LOSS OF CONSCIOUSNESS, SKIN IRRITATION. STUDIES (SPONSORED BY API) CONDUCTED IN THE U.S. EXAMINING THE MORTALITY EXPERIENCE (CAUSES OF DEATH) OF DISTRIBUTION WORKERS WITH LONG-TERM EXPOSURE TO GASOLINE HAVE NOT FOUND ANY GASOLINE-RELATED HEALTH EFFECTS. CASE REPORTS OF CHRONIC GASOLINE ABUSE (SUCH AS GASOLINE SNIFFING) AND CHRONIC MISUSE OF GASOLINE AS A SOLVENT OR AS A CLEANING AGENT HAVE REPORTED A RANGE OF NEUROLOGICAL EFFECTS (NERVOUS SYSTEM EFFECTS), SUDDEN DEATHS FROM CARDIAC ARREST (HEART ATTACKS), HEMATOLOGIC CHANGES (BLOOD EFFECTS) AND LEUKEMIA. THESE EFFECTS ARE NOT EXPECTED TO OCCUR AT EXPOSURE LEVELS ENCOUNTERED IN THE DISTRIBUTION AND USE OF GASOLINE AS A MOTOR FUEL.

EMERGENCY RESPONSE DATA: CLEAR (MAY BE DYED) LIQUID. EXTREMELY FLAMMABLE. VAPOR ACCUMULATION COULD FLASH AND/OR EXPLODE IF IN CONTACT WITH OPEN FLAME. DOT ERG NO. -128

4. FIRST AID MEASURES

EYE CONTACT: FLUSH THOROUGHLY WITH WATER. IF IRRITATION OCCURS, CALL A PHYSICIAN.

SKIN CONTACT: WASH CONTACT AREAS WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDRY CONTAMINATED CLOTHING BEFORE REUSE.

INHALATION: REMOVE FROM FURTHER EXPOSURE. IF RESPIRATORY IRRITATION, DIZZINESS, NAUSEA, OR UNCONSCIOUSNESS OCCURS, SEEK IMMEDIATE MEDICAL ASSISTANCE. IF BREATHING HAS STOPPED, ASSIST VENTILATION WITH BAG-VALVE-MASK DEVICE OR USE MOUTH-TO-MOUTH RESUSCITATION.

INGESTION: SEEK IMMEDIATE MEDICAL ATTENTION. DO NOT INDUCE VOMITING.

NOTE TO PHYSICIANS: MATERIAL IF INGESTED MAY BE ASPIRATED INTO THE LUNGS AND CAN CAUSE CHEMICAL PNEUMONITIS. TREAT APPROPRIATELY.

5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: CARBON DIOXIDE, FOAM, DRY CHEMICAL, WATER FOG.

SPECIAL FIRE FIGHTING PROCEDURES: EVACUATE AREA. FOR LARGE SPILLS, FIRE FIGHTING FOAM IS THE PREFERRED AGENT AND SHOULD BE APPLIED IN SUFFICIENT QUANTITIES TO BLANKET THE GASOLINE SURFACE. WATER SPRAY MAY BE USED TO FLUSH SPILL AWAY FROM EXPOSURES, BUT GOOD JUDGEMENT SHOULD BE PRACTICED TO PREVENT SPREADING OF THE GASOLINE INTO SEWERS, STREAMS OR DRINKING WATER SUPPLIES. IF A LEAK OR SPILL HAS NOT IGNITED, APPLY A FOAM BLANKET TO SUPPRESS THE RELEASE OF VAPORS. IF FOAM IS NOT AVAILABLE, A WATER SPRAY CURTAIN CAN BE USED TO DISPERSE VAPORS AND TO PROTECT PERSONNEL ATTEMPTING TO STOP THE LEAK.

SPECIAL PROTECTIVE EQUIPMENT: FOR FIRES IN ENCLOSED AREAS, FIRE FIGHTERS MUST USE SELF-CONTAINED BREATHING APPARATUS.

UNUSUAL FIRE AND EXPLOSION HAZARDS: EXTREMELY FLAMMABLE. VAPOR ACCUMULATION COULD FLASH AND/OR EXPLODE IF IN CONTACT WITH OPEN FLAME. FLASH POINT C(F): < -40(-40) (ASTM D-56). FLAMMABLE LIMITS - LEL: 1.4%, UEL: 7.6%.

NFPA HAZARD ID: HEALTH: 1, FLAMMABILITY: 3, REACTIVITY: 0

HAZARDOUS DECOMPOSITION PRODUCTS: CARBON MONOXIDE.

6. ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES: REPORT SPILLS AS REQUIRED TO APPROPRIATE AUTHORITIES. U. S. COAST GUARD REGULATIONS REQUIRE IMMEDIATE REPORTING OF SPILLS THAT COULD REACH ANY WATERWAY INCLUDING INTERMITTENT DRY CREEKS. REPORT SPILL TO COAST GUARD TOLL FREE NUMBER (800) 424-8802. IN CASE OF ACCIDENT OR ROAD SPILL NOTIFY CHEMTREC (800) 424-9300.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: ELIMINATE ALL IGNITION SOURCES. RUNOFF MAY CREATE FIRE OR EXPLOSION HAZARD IN SEWER SYSTEM. ADSORB ON FIRE RETARDANT TREATED SAWDUST, DIATOMACEOUS EARTH, ETC. SHOVEL UP AND DISPOSE OF AT AN APPROPRIATE WASTE DISPOSAL FACILITY IN ACCORDANCE WITH CURRENT APPLICABLE LAWS AND

(SECTION CONTINUED NEXT PAGE)

REGULATIONS, AND PRODUCT CHARACTERISTICS AT TIME OF DISPOSAL.
ENVIRONMENTAL PRECAUTIONS: PREVENT SPILLS FROM ENTERING STORM SEWERS
OR DRAINS AND CONTACT WITH SOIL.
PERSONAL PRECAUTIONS: SEE SECTION 8

7. HANDLING AND STORAGE

HANDLING: NEVER SIPHON GASOLINE BY MOUTH. GASOLINE SHOULD NOT BE USED AS A SOLVENT OR AS A CLEANING AGENT. USE NON-SPARKING TOOLS AND EXPLOSION-PROOF EQUIPMENT. AVOID CONTACT WITH SKIN. AVOID INHALATION OF VAPORS OR MISTS. USE IN WELL VENTILATED AREA AWAY FROM ALL IGNITION SOURCES. PORTABLE CONTAINERS APPROVED FOR STORING FUEL MUST BE PLACED ON THE GROUND AND THE NOZZLE MUST STAY IN CONTACT WITH THE CONTAINER WHEN FILLING TO PREVENT BUILD UP AND DISCHARGE OF STATIC ELECTRICITY.

STORAGE: DRUMS MUST BE GROUNDED AND BONDED AND EQUIPPED WITH SELF-CLOSING VALVES, PRESSURE VACUUM BUNGS AND FLAME ARRESTERS. STORE AWAY FROM ALL IGNITION SOURCES IN A COOL AREA EQUIPPED WITH AN AUTOMATIC SPRINKLING SYSTEM. OUTSIDE OR DETACHED STORAGE PREFERRED. STORAGE CONTAINERS SHOULD BE GROUNDED AND BONDED.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: USE IN WELL VENTILATED AREA WITH LOCAL EXHAUST VENTILATION. VENTILATION REQUIRED AND EQUIPMENT MUST BE EXPLOSION PROOF. USE AWAY FROM ALL IGNITION SOURCES.

RESPIRATORY PROTECTION: APPROVED RESPIRATORY EQUIPMENT MUST BE USED WHEN AIRBORNE CONCENTRATIONS ARE UNKNOWN OR EXCEED THE TLV.

EYE PROTECTION: IF SPLASH WITH LIQUID IS POSSIBLE, SAFETY GLASSES WITH SIDE SHIELDS OR CHEMICAL GOGGLES SHOULD BE WORN.

SKIN PROTECTION: IMPERVIOUS GLOVES SHOULD BE WORN. GOOD PERSONAL HYGIENE PRACTICES SHOULD ALWAYS BE FOLLOWED.

SUBSTANCE NAME (CAS-NO.)	SOURCE	---TWA---		----STEL----		NOTE
		PPM	MG/M3	PPM	MG/M3	
GASOLINE (8006-61-9)	MOBIL	300	890			
	OSHA	300	900	500	1500	
	ACGIH	300	890	500	1480	
METHYL T-BUTYL ETHER (1634-04-4)	MOBIL	40	144			
	ACGIH	40	144			
ETHANOL (64-17-5)	MOBIL	1000	1880			
	OSHA	1000	1900			
	ACGIH	1000	1880			

(SECTION CONTINUED NEXT PAGE)

YLENE (1330-20-7)					
O, M, P, -ISOMERS	MOBIL	100	434		
O, M, P, -ISOMERS	OSHA	100	435	150	655
O, M, P, -ISOMERS	ACGIH	100	434	150	651
ISOPENTANE (78-78-4)					
ALL ISOMERS	MOBIL	600	1770		
	ACGIH	600	1770	750	2210
TOLUENE (108-88-3)					
SKIN	MOBIL	50	188		
	OSHA	100	375	150	560
SKIN	ACGIH	50	188		
PSEUDOCUMENE (95-63-6)					
	MOBIL	25	125		
	OSHA	25	123		
	ACGIH	25	123		
BUTANE (106-97-8)					
	MOBIL	800	1900		
	OSHA	800	1900		
	ACGIH	800	1900		
2-METHYLPENTANE (107-83-5)					
ISOMER OF N-HEXANE	MOBIL	500	1760		
	ACGIH	500	1760	1000	3500
PENTANE (109-66-0)					
	MOBIL	600	1770		
	OSHA	600	1800	750	2250
ALL ISOMERS	ACGIH	600	1770	750	2210
TRIMETHYL BENZENE (25551-13-7)					
	MOBIL	25	123		
	OSHA	25	125		
	ACGIH	25	123		
3-METHYLPENTANE (96-14-0)					
ISOMER OF N-HEXANE	MOBIL	500	1760		
	ACGIH	500	1760	1000	3500
BENZENE (71-43-2)					
	MOBIL	1	3.2		
	OSHA	1		5	
	ACGIH	10	32		
2,3-DIMETHYLBUTANE (79-29-8)					
ISOMER OF N-HEXANE	MOBIL	500	1760		
	ACGIH	500	1760	1000	3500
N-HEXANE (110-54-3)					
N-HEXANE	MOBIL	50	176		
OTHER ISOMERS	MOBIL	500	1760		

(SECTION CONTINUED NEXT PAGE)

N-HEXANE OTHER ISOMERS	OSHA	50	180		
	ACGIH	50	176		
	ACGIH	500	1760	1000	3500
ETHYL BENZENE (100-41-4)					
		MOBIL	100	434	
		OSHA	100	435	125 545
		ACGIH	100	434	125 543
3- METHYLHEXANE (589-34-4)					
		MOBIL	400	1640	
2- METHYLHEXANE (591-76-4)					
		MOBIL	400	1640	
METHYLCYCLOHEXANE (108-87-2)					
		MOBIL	400	1610	
		OSHA	400	1600	
		ACGIH	400	1610	

NOTE: LIMITS SHOWN FOR GUIDANCE ONLY. FOLLOW APPLICABLE REGULATIONS.

9. PHYSICAL AND CHEMICAL PROPERTIES

TYPICAL PHYSICAL PROPERTIES ARE GIVEN BELOW. CONSULT PRODUCT DATA SHEET FOR SPECIFIC DETAILS.

APPEARANCE: LIQUID
COLOR: CLEAR (MAY BE DYED)
ODOR: GASOLINE
ODOR THRESHOLD-PPM: NE
PH: NA
BOILING POINT C(F): > 35(95)
MELTING POINT C(F): NA
FLASH POINT C(F): < -40(-40) (ASTM D-56)
FLAMMABILITY: NE
AUTO FLAMMABILITY: NE
EXPLOSIVE PROPERTIES: NA
OXIDIZING PROPERTIES: NA
VAPOR PRESSURE-MMHG 20 C: > 400.0
VAPOR DENSITY: 3.0
EVAPORATION RATE: NE
RELATIVE DENSITY, 15/4 C: 0.79
SOLUBILITY IN WATER: NEGLIGIBLE
PARTITION COEFFICIENT: NE
VISCOSITY AT 40 C, CST: < 1.0
VISCOSITY AT 100 C, CST: NA
POUR POINT C(F): NA
FREEZING POINT C(F): NE
VOLATILE ORGANIC COMPOUND: NE
NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES

— FOR FURTHER TECHNICAL INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE

10. STABILITY AND REACTIVITY

STABILITY (THERMAL, LIGHT, ETC.): STABLE.
CONDITIONS TO AVOID: HEAT, SPARKS, FLAME AND BUILD UP OF STATIC
ELECTRICITY.

INCOMPATIBILITY (MATERIALS TO AVOID): HALOGENS, STRONG ACIDS,
ALKALIES, AND OXIDIZERS.

HAZARDOUS DECOMPOSITION PRODUCTS: CARBON MONOXIDE.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

11. TOXICOLOGICAL DATA

---ACUTE TOXICOLOGY---

ORAL TOXICITY (RATS): PRACTICALLY NON-TOXIC (LD50: GREATER THAN 2000
MG/KG). ---BASED ON TESTING OF SIMILAR PRODUCTS AND/OR THE
COMPONENTS.

DERMAL TOXICITY (RABBITS): PRACTICALLY NON-TOXIC (LD50: GREATER THAN
2000 MG/KG). ---BASED ON TESTING OF SIMILAR PRODUCTS AND/OR THE
COMPONENTS.

INHALATION TOXICITY (RATS): PRACTICALLY NON-TOXIC (LC50: GREATER
THAN 5 MG/L). ---BASED ON TESTING OF SIMILAR PRODUCTS AND/OR THE
COMPONENTS.

EYE IRRITATION (RABBITS): PRACTICALLY NON-IRRITATING. (DRAIZE SCORE:
GREATER THAN 6 BUT 15 OR LESS). ---BASED ON TESTING OF SIMILAR
PRODUCTS AND/OR THE COMPONENTS.

SKIN IRRITATION (RABBITS): IRRITANT. (PRIMARY IRRITATION INDEX: 3
OR GREATER BUT LESS THAN 5). ---BASED ON TESTING OF SIMILAR
PRODUCTS AND/OR THE COMPONENTS.

OTHER ACUTE TOXICITY DATA: INHALATION OF VAPORS/MISTS MAY CAUSE
RESPIRATORY SYSTEM IRRITATION. HAZARDS OF COMBUSTION PRODUCTS:
EXPOSURE TO HIGH CONCENTRATIONS OF CARBON MONOXIDE CAN CAUSE LOSS
OF CONSCIOUSNESS, HEART DAMAGE, BRAIN DAMAGE AND DEATH. EXPOSURE
TO HIGH CONCENTRATIONS OF CARBON DIOXIDE CAN CAUSE SIMPLE
ASPHYXIATION BY DISPLACING OXYGEN.

---SUBCHRONIC TOXICOLOGY (SUMMARY)---

90-DAY ORAL GAVAGE STUDIES WITH RATS RESULTED IN KIDNEY EFFECTS AT
1200 MG/KG MTBE, BUT THESE EFFECTS ARE NOT CONSIDERED SIGNIFICANT
TO HUMANS. THIRTEEN WEEK INHALATION STUDIES WITH RATS ON MTBE
RESULTED IN INCREASED ORGAN WEIGHTS AND DECREASED BODY WEIGHT AND
ANAESTHETIC EFFECTS AT LEVELS > 800 PPM.

---NEUROTOXICOLOGY (SUMMARY)---

NO SIGNIFICANT ADVERSE EFFECTS WERE OBSERVED AT 8000 PPM MTBE IN A
90-DAY NEUROTOXICITY STUDY WITH RATS.

---REPRODUCTIVE TOXICOLOGY (SUMMARY)---

INHALATION TERATOLOGY STUDY WITH MICE AT 2700 PPM MTBE DURING
GESTATION RESULTED IN NO ADVERSE EFFECTS. ANOTHER INHALATION
TERATOLOGY STUDY IN MICE AT 4000 PPM SHOWED SOME DEVELOPMENTAL
EFFECTS. THE NOEL WAS 1000 PPM. TERATOLOGY STUDIES IN RATS
TREATED BY INHALATION (LESS THAN OR EQUAL TO 2500 PPM) SHOWED NO

(SECTION CONTINUED NEXT PAGE)

EFFECTS ON FETUSES. ONE GENERATION REPRODUCTIVE STUDIES, DOSING BY INHALATION AT LEVELS UP TO 2500 PPM, SHOWED NO ADVERSE EFFECTS IN RATS. A TWO-GENERATION INHALATION REPRODUCTIVE STUDY AT 8000 PPM SHOWED NO REPRODUCTIVE OR DEVELOPMENTAL EFFECTS IN RATS. A TERATOLOGY INHALATION STUDY IN RABBITS AT 8000 PPM DURING GESTATION SHOWED NO DEVELOPMENTAL EFFECTS.

---CHRONIC TOXICOLOGY (SUMMARY)---

AN INCREASED INCIDENCE OF KIDNEY AND LIVER TUMORS WAS OBSERVED IN LABORATORY ANIMALS EXPOSED TO > 3000 PPM MTBE. THESE EFFECTS ARE NOT CONSIDERED SIGNIFICANT TO HUMANS.

---SENSITIZATION (SUMMARY)---

***SKIN SENSITIZATION: NEGATIVE GUINEA PIG TEST.

---OTHER TOXICOLOGY DATA---

GASOLINE AND REFINERY STREAMS: STUDIES CONDUCTED BY THE AMERICAN PETROLEUM INSTITUTE EXAMINED A REFERENCE UNLEADED GASOLINE FOR MUTAGENIC, TERATOGENIC AND SENSITIZATION POTENTIAL; NO EVIDENCE OF THESE HAZARDS WAS FOUND. HOWEVER, ISOLATED CONSTITUENTS OF GASOLINE MAY DISPLAY THESE OR OTHER POTENTIAL HAZARDS IN LABORATORY TESTS. THERE WERE NO SIGNIFICANT ADVERSE EFFECTS IN THREE-MONTH SUBCHRONIC INHALATION STUDIES IN RATS OR MONKEYS, OR IN A TWO-YEAR SKIN CANCER STUDY IN MICE. STUDIES WITH LABORATORY ANIMALS HAVE SHOWN THAT GASOLINE VAPORS ADMINISTERED AT HIGH CONCENTRATIONS OVER A PROLONGED PERIOD OF TIME CAUSED KIDNEY DAMAGE AND KIDNEY CANCER IN MALE RATS AND LIVER CANCER IN FEMALE MICE. STUDIES CARRIED OUT BY MOBIL'S ENVIRONMENTAL AND HEALTH SCIENCES LABORATORY ON SOME OF THE MAJOR REFINERY STREAMS FROM WHICH GASOLINE IS FORMULATED SUPPORT THE RESULTS OF THE API STUDIES. THERE WAS NO EVIDENCE OF SIGNIFICANT ADVERSE SYSTEMIC OR REPRODUCTIVE EFFECTS FOR LIGHT CATALYTIC CRACKED NAPHTHAS AND REFORMED NAPHTHAS. COMPONENTS: GASOLINE CONSISTS OF A COMPLEX BLEND OF PETROLEUM/PROCESSING DERIVED PARAFFINIC, OLEFINIC, NAPHTHENIC AND AROMATIC HYDROCARBONS WHICH INCLUDE UP TO 5% BENZENE (WITH 1-2% TYPICAL IN THE U.S.), N-HEXANE, MIXED XYLENES, TOLUENE, ETHYLBENZENE AND TRIMETHYL BENZENE. REPEATED EXPOSURES TO LOW LEVELS OF BENZENE HAVE BEEN REPORTED TO RESULT IN BLOOD ABNORMALITIES INCLUDING ANEMIA AND, IN RARE CASES, LEUKEMIA IN BOTH ANIMALS AND HUMANS. PROLONGED EXPOSURE TO N-HEXANE MAY RESULT IN NERVOUS SYSTEM DAMAGE, INCLUDING NUMBNESS OF THE EXTREMITIES AND, IN EXTREME CASES, PARALYSIS. THE ADVERSE EFFECTS ASSOCIATED WITH THESE COMPONENTS HAVE NOT BEEN OBSERVED IN STUDIES WITH GASOLINE OR THE REFINERY STREAMS FROM WHICH IT IS FORMULATED. GENERALLY, HUMAN EXPOSURES TO GASOLINE VAPORS ARE CONSIDERABLY LESS THAN THOSE USED IN THE ANIMAL TOXICITY STUDIES. AS FAR AS SCIENTISTS KNOW, LOW LEVEL OR INFREQUENT EXPOSURES TO GASOLINE VAPOR ARE UNLIKELY TO BE ASSOCIATED WITH CANCER OR OTHER SERIOUS DISEASES IN HUMANS.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE AND EFFECTS: NOT ESTABLISHED.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: PRODUCT IS SUITABLE FOR BURNING FOR FUEL VALUE IN COMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS.

RCRA INFORMATION: DISPOSAL OF UNUSED PRODUCT MAY BE SUBJECT TO RCRA REGULATIONS (40 CFR 261) DUE TO THE CHARACTERISTIC(S)/CHEMICAL(S) LISTED BELOW. DISPOSAL OF THE USED PRODUCT MAY ALSO BE REGULATED DUE TO IGNITABILITY, CORROSIVITY, REACTIVITY, OR TOXICITY AS DETERMINED BY THE TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP).

BENZENE: 2.3200 PCT (TCLP)

FLASH: < -40(-40) C(F)

14. TRANSPORT INFORMATION

USA DOT:

SHIPPING NAME:	GASOLINE
HAZARD CLASS & DIV:	3
ID NUMBER:	UN1203
ERG NUMBER:	128
PACKING GROUP:	PG II
STCC:	NE
DANGEROUS WHEN WET:	NO
POISON:	NO
LABEL(S):	FLAMMABLE LIQUID
PLACARD(S):	FLAMMABLE
PRODUCT RQ:	NA
MARPOL III STATUS:	NA

RID/ADR:

HAZARD CLASS:	3
HAZARD SUB-CLASS:	3(B)
LABEL:	3
DANGER NUMBER:	33
UN NUMBER:	1203
SHIPPING NAME:	HYDROCARBONS, LIQUID HAVING A FLASH POINT BELOW 21DEG C
REMARKS:	NA

IMO:

HAZARD CLASS & DIV:	3.1
UN NUMBER:	1203
PACKING GROUP:	PG II
SHIPPING NAME:	GASOLINE
LABEL(S):	FLAMMABLE LIQUID
MARPOL III STATUS:	NA

ICAO/IATA:

HAZARD CLASS & DIV:	3
ID/UN NUMBER:	1203
PACKING GROUP:	PG II

(SECTION CONTINUED NEXT PAGE)

SHIPPING NAME: GASOLINE
SUBSIDIARY RISK: NA
LABEL(S): FLAMMABLE LIQUID

15. REGULATORY INFORMATION

GOVERNMENTAL INVENTORY STATUS: ALL COMPONENTS COMPLY WITH TSCA, AND
EINECS/ELINCS.

EU LABELING:

SYMBOL: F+ T EXTREMELY FLAMMABLE, TOXIC.

RISK PHRASE(S): R12-45-38-22.

EXTREMELY FLAMMABLE. MAY CAUSE CANCER. IRRITATING TO SKIN.
HARMFUL IF SWALLOWED.

SAFETY PHRASE(S): S53-45-2-23-24-29-43-62.

AVOID EXPOSURE - OBTAIN SPECIAL INSTRUCTIONS BEFORE USE. IN CASE OF
ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY
(SHOW THE LABEL WHERE POSSIBLE). KEEP OUT OF THE REACH OF CHILDREN.
DO NOT BREATHE VAPOR. AVOID CONTACT WITH SKIN. DO NOT EMPTY INTO
DRAINS. IN CASE OF FIRE USE CARBON DIOXIDE, FOAM, DRY CHEMICAL OR
WATER FOG. IF SWALLOWED, DO NOT INDUCE VOMITING. SEEK MEDICAL
ADVICE IMMEDIATELY AND SHOW THIS CONTAINER OR LABEL.

CONTAINS: LOW BOILING POINT NAPHTHA.

U.S. SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) TITLE III:
THIS PRODUCT CONTAINS NO "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (311/312) REPORTABLE HAZARD CATEGORIES:
FIRE CHRONIC ACUTE

THIS PRODUCT CONTAINS THE FOLLOWING SARA (313) TOXIC RELEASE
CHEMICALS:

CHEMICAL NAME	CAS NUMBER	CONC.
-----	-----	-----
BENZENE (COMPONENT ANALYSIS)	71-43-2	2.32%
PSEUDOCUMENE (COMPONENT ANALYSIS)	95-63-6	4.55%
ETHYL BENZENE (COMPONENT ANALYSIS)	100-41-4	1.6%
TOLUENE (COMPONENT ANALYSIS)	108-88-3	4.65%
N-HEXANE (COMPONENT ANALYSIS)	110-54-3	1.69%
XYLENES (COMPONENT ANALYSIS)	1330-20-7	9.9%
METHYL-TERT-BUTYL ETHER (COMPONENT ANALYSIS)	1634-04-4	15.1%

(SECTION CONTINUED NEXT PAGE)

AUTOMOTIVE GASOLINE, UNLEADED (MRDUS)

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THE FOLLOWING PRODUCT INGREDIENTS ARE CITED ON THE LISTS BELOW:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS
ETHYL ALCOHOL (COMPONENT ANALYSIS)	64-17-5	1, 6, 10, 17, 18, 19, 20, 21, 23, 25, 26
BENZENE (COMPONENT ANALYSIS) (2.32%)	71-43-2	1, 3, 4, 6, 9, 10, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26
ISOPENTANE (COMPONENT ANALYSIS)	78-78-4	1, 19, 24, 25
2,3-DIMETHYLBUTANE (COMPONENT ANALYSIS)	79-29-8	1, 19, 25
PSEUDOCUMENE (COMPONENT ANALYSIS)	95-63-6	1, 20, 24, 25
PENTANE, 3-METHYL- (COMPONENT ANALYSIS)	96-14-0	1, 19, 25
METHYL CYCLOPENTANE (COMPONENT ANALYSIS)	96-37-7	19, 25, 26
ETHYL BENZENE (COMPONENT ANALYSIS)	100-41-4	1, 10, 18, 19, 20, 21, 23, 24, 25, 26
BUTANE (COMPONENT ANALYSIS)	106-97-8	1, 10, 19, 20, 21, 23, 24, 25, 26
PENTANE, 2-METHYL- (COMPONENT ANALYSIS)	107-83-5	1, 19, 23, 25
METHYLCYCLOHEXANE (COMPONENT ANALYSIS)	108-87-2	1, 10, 18, 19, 20, 21, 23, 25, 26
TOLUENE (COMPONENT ANALYSIS) (4.65%)	108-88-3	1, 10, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26
PENTANE (COMPONENT ANALYSIS)	109-66-0	1, 10, 18, 19, 20, 21, 23, 24, 25, 26
N-HEXANE (COMPONENT ANALYSIS)	110-54-3	1, 10, 18, 19, 20, 21, 23, 24, 25, 26
2-METHYL 2-BUTENE (COMPONENT ANALYSIS)	513-35-9	19, 25
3-METHYLHEXANE (COMPONENT ANALYSIS)	589-34-4	19, 25
HEXANE, 2-METHYL- (COMPONENT ANALYSIS)	591-76-4	19, 25
1-HEXENE (COMPONENT ANALYSIS)	592-41-6	19, 25
XYLENES (COMPONENT ANALYSIS) (9.90%)	1330-20-7	1, 10, 18, 19, 20, 21, 22, 23, 24, 25, 26
METHYL-TERT-BUTYL ETHER (COMPONENT ANALYSIS)	1634-04-4	1, 11, 15, 21, 24, 25
GASOLINE	8006-61-9	1, 8, 10, 18, 19, 20, 21, 23, 26
TRIMETHYL BENZENE (COMPONENT ANALYSIS)	25551-13-7	1, 10, 19, 20, 21, 23, 25, 26

--- REGULATORY LISTS SEARCHED ---

1 = ACGIH ALL	6 = IARC 1	11 = TSCA 4	17 = CA P65	22 = MI 293
2 = ACGIH A1	7 = IARC 2A	12 = TSCA 5A2	18 = CA RTK	23 = MN RTK
3 = ACGIH A2	8 = IARC 2B	13 = TSCA 5E	19 = FL RTK	24 = NJ RTK
4 = NTP CARC	9 = OSHA CARC	14 = TSCA 6	20 = IL RTK	25 = PA RTK
5 = NTP SUS	10 = OSHA Z	15 = TSCA 12B	21 = LA RTK	26 = RI RTK

CODE KEY: CARC = CARCINOGEN; SUS = SUSPECTED CARCINOGEN

16. OTHER INFORMATION

PRECAUTIONARY LABEL TEXT:

CONTAINS GASOLINE

DANGER

EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE. MAY CAUSE SKIN, NOSE, THROAT, AND LUNG IRRITATION, DIZZINESS, NAUSEA, AND LOSS OF CONSCIOUSNESS. LOW VISCOSITY MATERIAL-IF SWALLOWED, MAY BE ASPIRATED AND CAN CAUSE SERIOUS OR FATAL LUNG DAMAGE.

LONG-TERM EXPOSURE TO GASOLINE VAPOR HAS CAUSED KIDNEY AND LIVER CANCER IN LABORATORY ANIMALS.

KEEP AWAY FROM HEAT, SPARKS, AND FLAME. AVOID ALL PERSONAL CONTACT. AVOID PROLONGED BREATHING OF VAPOR. USE WITH ADEQUATE VENTILATION. KEEP CONTAINER CLOSED. APPROVED PORTABLE CONTAINERS MUST BE PROPERLY GROUNDED WHEN TRANSFERRING FUEL. FOR USE AS A MOTOR FUEL ONLY. MISUSE OF GASOLINE MAY CAUSE SERIOUS INJURY OR ILLNESS. NEVER SIPHON BY MOUTH. NOT TO BE USED AS A SOLVENT OR SKIN CLEANING AGENT.

FIRST AID: IN CASE OF CONTACT, WASH SKIN WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. DESTROY OR WASH CLOTHING BEFORE REUSE. IF SWALLOWED, SEEK IMMEDIATE MEDICAL ATTENTION. DO NOT INDUCE VOMITING. ONLY INDUCE VOMITING AT THE INSTRUCTION OF A PHYSICIAN.

EMPTY CONTAINER MAY CONTAIN PRODUCT RESIDUE, INCLUDING FLAMMABLE OR EXPLOSIVE VAPORS. DO NOT CUT, PUNCTURE, OR WELD ON OR NEAR CONTAINER. ALL LABEL WARNINGS AND PRECAUTIONS MUST BE OBSERVED UNTIL CONTAINER HAS BEEN THOROUGHLY CLEANED OR DESTROYED.

THIS WARNING IS GIVEN TO COMPLY WITH CALIFORNIA HEALTH AND SAFETY CODE 25249.6 AND DOES NOT CONSTITUTE AN ADMISSION OR A WAIVER OF RIGHTS. THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR OTHER REPRODUCTIVE HARM. REFER TO PRODUCT MATERIAL SAFETY DATA BULLETIN FOR FURTHER SAFETY AND HEALTH INFORMATION.

USE: UNLEADED MOTOR FUEL

NOTE: MOBIL PRODUCTS ARE NOT FORMULATED TO CONTAIN PCBS.

INGREDIENT	PERCENT	CAS NUMBER
GASOLINE	100.00	8006-61-9

FOR INTERNAL USE ONLY: MHC: 1* 1* 1* 1* 2*, MPPEC: C, REQ: US -
MARKETING, SAFE USE: S

(SECTION CONTINUED NEXT PAGE)

Appendix G

Plan Amendments

and

Activity-Specific Safety Procedures

Health and Safety Plan (HASP)
Operation & Maintenance Activities
Waukegan Harbor Remedial Action
Revision No: 0 Issued: December 1998

Appendix H

Accident/ Loss Reports

OUTBOARD MARINE CORPORATION EMPLOYEE'S REPORT OF ACCIDENT

Please complete this form in detail, as information provided by you can be a valuable tool in the prevention of accidents. This accident should be reported to your supervisor immediately.

Date of this Report _____

Clock No. _____

OMC LOCATION _____

Injured Employee _____ Supervisor/Coach _____

Occupation _____ Date of Accident _____ Dept _____ Shift _____

Time of _____ a.m. _____

Accident: _____ p.m. _____ Exact Location _____

How did it happen? (Detail what you were doing and what tools, equipment, structures or fixtures were involved.) _____

Description of Injury/Illness _____

What should be done, and by whom to prevent a recurrence of this type of accident? _____

Has this accident been reported to your Supervisor/Coach? Yes _____ No _____

GIVE THE YELLOW COPY TO YOUR SUPERVISOR/COACH UPON RETURN TO YOUR DEPARTMENT.

Employee's Signature _____

THIS SECTION TO BE FILLED OUT BY FIRST AID PROVIDER.

FIRST AID ONLY Y ☐ N ☐ OSHA Recordable Case Y ☐ N ☐ Referred to DR/Hospital Y ☐ N ☐

WHITE COPY TO BE SENT TO THE H.R. DEPARTMENT

OMC - 8035-C

OUTBOARD MARINE CORPORATION SUPERVISOR'S ACCIDENT INVESTIGATION

THIS REPORT MUST BE COMPLETED FOR EACH OSHA RECORDABLE INJURY OR ILLNESS AND SENT TO CORPORATE SAFETY WITH THE EMPLOYERS FIRST REPORT OF INJURY (NO LATER THAN 7 DAYS FROM DATE OF ACCIDENT).

INJURED EMPLOYEE:			OMC LOCATION:		
CLOCK #		DEPT. #		SHIFT:	
DATE OF ACCIDENT:		TIME:		REPORT DATE: INVESTIGATED BY:	
RESTRICTED DUTY Y <input type="checkbox"/> N <input type="checkbox"/> LOST WORKDAYS Y <input type="checkbox"/> N <input type="checkbox"/> RETURNED TO WORK Y <input type="checkbox"/> N <input type="checkbox"/>					
NAME OF SUPERVISOR/COACH:					
DESCRIPTION OF ACCIDENT (DETAIL WHAT EMPLOYEE WAS DOING AND WHAT TOOLS OR EQUIPMENT WERE INVOLVED):					
DESCRIPTION OF INJURY/ILLNESS SUSTAINED:					
PERSONAL PROTECTIVE EQUIPMENT USED? Y <input type="checkbox"/> N <input type="checkbox"/> DESCRIBE:					
WITNESSES?					
CORRECTIVE ACTION TO BE TAKEN:					
WHO IS RESPONSIBLE FOR CORRECTIVE ACTION?					
DATE CORRECTIVE ACTION WILL BE COMPLETED?					
EMPLOYEE'S SIGNATURE:					
SIGNATURE SUPERVISOR/COACH:				HUMAN RESOURCES/ LOCATION MANAGER:	
WHITE COPY -- HUMAN RESOURCES YELLOW COPY -- CORPORATE SAFETY PINK COPY -- SUPERVISOR/TEAM COACH					

INSTRUCTIONS FOR COMPLETING FORM ON BACK

THE PURPOSE OF AN ACCIDENT INVESTIGATION IS PREVENTION

HOW TO INVESTIGATE AN ACCIDENT

- Insure that all injured personnel receive necessary emergency medical treatment.
 - Secure the accident scene if necessary to prevent further injury and to preserve the conditions surrounding the accident.
 - Interview the injured person if possible.
 - Get the complete details of the accident. Ask the injured person to demonstrate how the accident occurred. (If the accident involved a machine, implement the OMC Lockout/Tagout Procedure.) Never permit anyone to demonstrate an accident with the power on.
 - Review the physical causes that may have been involved.
 - Find as many Contributory causes as possible. Trace each item down to determine why the condition existed.
 - Develop corrective action and implement it. Report defective equipment to the proper individuals.
 - Inform other employees of the accident and instruct them how to avoid a similar accident.
 - Submit required forms to Corporate Safety. Fatalities or serious accidents must be reported to Corporate Safety immediately, call 708-689-6200 on weekends, holidays or after business hours.
-

DESCRIPTION OF ACCIDENT

- Job being performed.
- Materials, parts and objects involved.
- Weight of materials or objects being moved.
- Surface condition - wet, oily, rough, broken, etc.
- Machines involved (machine number).
- Machine guarding - type used - properly adjusted.
- Tools, hand tools and air tools involved.
- Vehicle involved.
- Chemical, coolant, solvent involved.

PERSONAL PROTECTIVE EQUIPMENT USED

- Eye: Safety glasses with or without side shields.
Goggles - personal RX glasses.
- Face: Face Shield
- Head: Hard hat, hair protection
- Hand: Gloves - rubber, leather, cloth
- Foot: Safety shoes, rubber boots
- Respiratory: Type of respirator and manufacturer
- Hearing Protection: Plugs, muffs
- Protective Clothing: Heat resistant sleeves, jackets, coveralls, etc.

CORRECTIVE ACTION TO BE TAKEN

- Alert other employees and supervisors of accident.
- Indicate what corrective action will be taken to prevent a similar accident.

DESCRIPTION OF INJURY/ILLNESS SUSTAINED

- Part of body injured - hand, finger, foot, leg (right, left) etc.
- Type of injury - laceration, contusion, foreign body, fracture, burn, strain, sprain, etc.
- Cumulative trauma*
- Dermatitis*
- * Record in illness section of OSHA log.

WITNESSES

- List names of all witnesses.
- If witnesses are not OMC employees obtain their home address and telephone number.

EMPLOYEE'S SIGNATURE

Employee's signature does not indicate approval or disapproval. If employee is not available, or refuses to sign indicate on the employee's signature line.